

BUSINESS WEEK



The Joint Chiefs of Staff: Running a new fighting machine (SPECIAL REPORT, page 106)

A MCGRAW HILL PUBLICATION

MARCH 2, 1957

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UNIVERSITY MICROFILMS
313 N 1ST ST
ANN ARBOR MICH



***"National Accounting Machines save us \$85,000 a year...
return 67% annually on our investment!"***

—ALLIS-CHALMERS, Milwaukee

"Since Allis-Chalmers built its reputation on quality, we naturally look for the economy of quality in the equipment we purchase.

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"These Nationals have paid us additional dividends in the ease of operator training, improved operator morale, and on-time and on-the-spot statistical information that we require for the operation of our business."

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GENERAL BUSINESS

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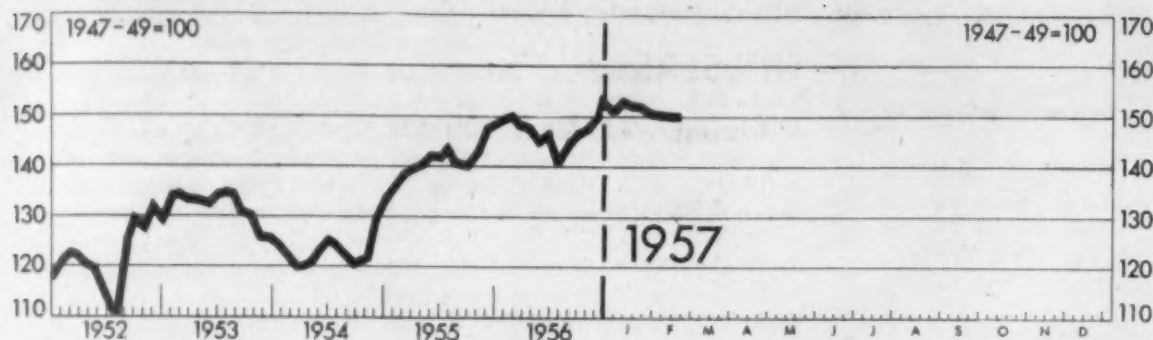
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FIGURES OF THE WEEK



BUSINESS WEEK INDEX (chart)

1946 Average	Year Ago	Month Ago	Week Ago	Latest Week
91.6	150.7	152.8	†151.0	*150.8

PRODUCTION

Steel ingot (thous. of tons).....	1,281	2,459	2,498	12,504	2,456
Automobiles and trucks.....	62,880	156,293	178,550	†179,835	169,531
Engineering const. awards (Eng. News-Rec. 4-wk daily av. in thous.).....	\$17,083	\$69,736	\$55,832	\$60,866	\$62,437
Electric power (millions of kilowatt-hours).....	4,238	11,277	12,410	11,946	11,920
Crude oil and condensate (daily av., thous. of bbls.).....	4,751	7,183	7,396	7,515	7,567
Bituminous coal (daily av., thous. of tons).....	1,745	1,675	1,654	1,621	1,625
Paperboard (tons).....	167,269	291,984	282,631	280,060	262,293

TRADE

Carloadings: miscellaneous and l.c.l. (daily av., thous. of cars).....	82	71	65	67	68
Carloadings: all others (daily av., thous. of cars).....	53	46	45	44	45
Department store sales index (1947-49 = 100, not seasonally adjusted).....	90	95	100	†101	102
Business failures (Dun & Bradstreet, number).....	22	230	258	317	300

PRICES

Spot commodities, daily index (Moody's, Dec. 31, 1931 = 100).....	311.9	404.9	432.1	415.1	412.5
Industrial raw materials, daily index (BLS, 1947-49 = 100).....	††73.2	99.2	96.9	94.4	94.1
Foodstuffs, daily index (BLS, 1947-49 = 100).....	††75.4	76.1	83.4	80.7	80.3
Print cloth (spot and nearby, yd.).....	17.5¢	20.4¢	18.5¢	18.1¢	18.1¢
Finished steel, index (BLS, 1947-49 = 100).....	††76.4	157.1	171.6	173.0	173.4
Scrap steel composite (Iron Age, ton).....	\$20.27	\$47.83	\$55.50	\$53.33	\$52.17
Copper (electrolytic, delivered price, E & M, lb.).....	14.045¢	46.510¢	35.905¢	32.670¢	31.763¢
Wheat (No. 2, hard and dark hard winter, Kansas City, bu.).....	\$1.97	\$2.23	\$2.36	\$2.33	\$2.34
Cotton, daily price (middling, 1 in., 14 designated markets, lb.).....	**30.56¢	36.43¢	33.56¢	†33.77¢	33.82¢
Wool tops (Boston, lb.).....	\$1.51	\$1.80	\$2.21	\$2.18	\$2.18

FINANCE

90 stocks, price index (Standard & Poor's).....	135.7	359.4	355.7	344.8	344.9
Medium grade corporate bond yield (Baa issues, Moody's).....	3.05%	3.58%	4.48%	4.46%	4.47%
Prime commercial paper, 4 to 6 months, N. Y. City (prevailing rate).....	¾-1%	3%	3% %	3% %	3% %

BANKING (Millions of Dollars)

Demand deposits adjusted, reporting member banks.....	††45,820	56,106	58,296	56,423	56,291
Total loans and investments, reporting member banks.....	††71,916	84,073	85,583	84,828	85,070
Commercial and agricultural loans, reporting member banks.....	††9,299	26,241	30,349	30,257	30,353
U. S. gov't guaranteed obligations held, reporting member banks.....	††49,879	28,395	26,330	25,672	25,809
Total federal reserve credit outstanding.....	23,888	25,360	25,636	24,997	24,764

MONTHLY FIGURES OF THE WEEK

McGraw-Hill Indexes of New Orders (1950 = 100)

	1946 Average	Year Ago	Month Ago	Latest Month
New orders for machinery, except electrical (seasonally adjusted)..... January.....	N.A.	128	131	156
Construction & mining machinery..... January.....	N.A.	149	157	175
Engines & turbines..... January.....	N.A.	121	145	144
Pumps & compressors..... January.....	N.A.	152	189	176
Metalworking machinery..... January.....	N.A.	221	149	176
Other industrial machinery..... January.....	N.A.	117	123	140
Office equipment..... January.....	N.A.	125	151	156
New contracts for industrial building..... January.....	N.A.	163	199	202

* Preliminary, week ended Feb. 23, 1957.
† Revised.

†† Estimate.
‡ Ten designated markets, middling ‡ in.

§ Date for 'Latest Week' on each series on request.
N.A. Not available.

THE PICTURES—Jon Brannels—160; Grant Compton—26, 27, 43 (top); Convair—26; Defense Department—cover, 106, 128; Electrical Merchandise—43 (bot.); Ford Motor Co.—25 (can.); General Electric Research Laboratory—79; General Motors Corp.—25 (top); Eric Hess—94, 95, 97, 98; Bob Isen—43 (can.); Frank Keating—50, 51; Linde Air Products Co.—69; Leonard Nadel—70, 71; Arnold Newman—156 (bot.); Plymouth News Bureau—25 (bot.); Gene Pyle—156 (top); Standard of California—157, 159; George Tames—31 (rt.); U.P.—108; U. S. Air Force—107 (top), 114, 116, 124; U. S. Army—107 (bot.), 111, 123; U. S. Marine Corps—130; W.W.—30, 31 (lt.), 112, 118, 120, 126.

B.F. Goodrich report:



So hot that metal blisters, but hose doesn't melt

Problem: Guided missiles build up terrific heat as they streak through the sky at supersonic speeds. Heat that would blister ordinary metal; heat that would burn right through rubber!

A flexible hose is needed to handle the fuel that powers the missile. But the fuel is highly corrosive. Corrosion and heat!

What was done: B.F. Goodrich engineers used a new chemically produced material for the hose that stands both—and more. It stays strong and flexible at 100 degrees below zero as well as 450 degrees above.

The material, called "Teflon," has

the widest useful temperature range of any flexible material. It is reinforced with braids of stainless steel wire for strength and to resist corrosion. The combination makes an especially light hose—it weighs less than half as much as regular aircraft hose.

Extra benefits: This hose is now fulfilling its purpose perfectly in guided missiles, jet planes and rockets. And already important uses are being found for it in industry too.

Where to buy: Only two companies, B.F. Goodrich and Resistoflex Corp. make hose of a patented Resistoflex compound of Teflon.

For other types of B.F. Goodrich hose, see your B.F. Goodrich distributor. As a factory-trained specialist in rubber products, he can answer your questions about all the rubber products B.F. Goodrich makes for industry. B.F. Goodrich Industrial Products Co., Dept. M-892, Akron 18, Ohio.



ZOO'S



BLUES

Meet Annabelle—pride and joy of the London Zoo. Ever since she got hold of her toy ukulele, this onetime shy orangutan likes nothing better than a little shake, rattle and roll.

When this unusual picture-story appeared in a recent issue of **PARADE**, it stopped more than 7 out of 10 readers. Which proves that nothing tops a fresh, off-beat story if you want to win friends—and readers. **PARADE** has been doing just that so consistently that it's now the best read magazine in print.

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READERS REPORT

No Hair to Curl

Dear Sir:

Secretary Humphrey said that if the government continues its heavy spending "We'll have a depression that will curl your hair."

My thought is, what about the baldheaded man?

Is he depression-proof?

ED BATZNER

MILWAUKEE, WIS.

Architects' Approval

Dear Sir:

In Personal Business [BW—Dec. 1'56,p149] you discussed the importance of the architect to a person contemplating the building of a home.

... Opportunities to inform the public generally as to our profession are necessarily limited and we feel that you have rendered a real service both to your readers and ourselves.

FRANKLIN S. BUNCH

KEMP, BUNCH & JACKSON

ARCHITECTS

JACKSONVILLE, FLA.

Dear Sir:

The directors of the Pennsylvania Society of Architects wish to express their appreciation for the excellent article which appeared ... relative to the function of an architect. ...

WILLIAM W. ESHBACH

SECRETARY

PENNSYLVANIA SOCIETY OF

ARCHITECTS

HARRISBURG, PA.

Highway Giants

Dear Sir:

In your most excellent story on road building machinery makers [BW—Feb.9'57,p58] you told about the added speed and power of modern earthmoving equipment.

As a sample of improved productivity, we have estimated that the self-propelled earthmoving scraper and crawler tractor team of 1947 could move 92 yards per hour on a typical road building job.

Six years later in 1953, a typical scraper was 50% larger in size and 100% larger in horsepower and it could move 172 yards per hour. This is 87% higher productivity.

Just two years later by 1955, scrapers had grown another 30% in capacity and another 70% in horsepower. The most powerful



THE FIRST

Start by looking into these often overlooked conditions which can act as profit drains.

- Defective incoming materials from vendors
- "In-Process" rejection of materials or parts
- Excessive "In-Process" rework
- Extra machine set-up time and downtime
- High pre-assembly rejection rates
- High rejection after assembly
- Excessive material scrap losses
- Inconsistent quality supplied to the customer

Remember, to Test is to Economize

HALLMARK
OF QUALITY IN
NONDESTRUCTIVE
TEST SYSTEMS





STEP

to increase profits by reduced waste

CAN BE THE EASIEST

If you're trying to meet the squeeze on profits, look first in your own plant. High reject level, substantial scrap losses or rework, and excessive machine down-time, are all drains which affect profits directly.

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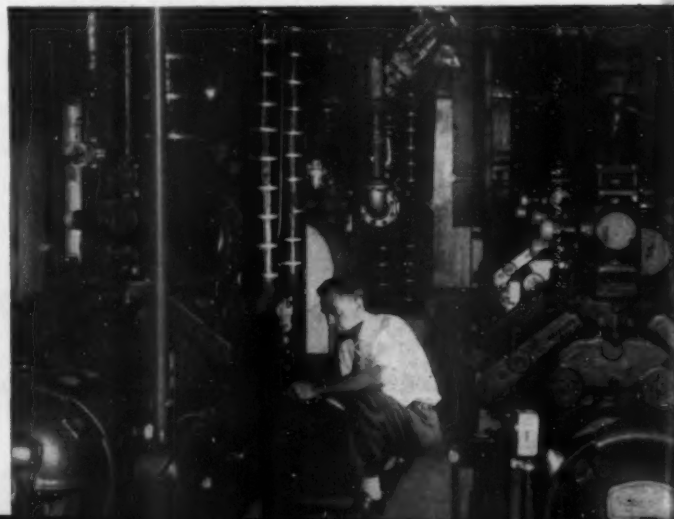
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ESSO RESEARCH AND ENGINEERING CO. in Linden, New Jersey, is the scene of two York-equipped cold test chambers.

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York refrigeration system installations include the gigantic environmental laboratory for U. S. Navy, Trenton; Sunkist's California Lemon Exchange; Carling Brewery in Natick, Mass.; Lehigh Valley Cooperative Farmers modern milk plant at Allentown, Pa.; Westinghouse, Baltimore.

You may rely with complete confidence upon the good judgment, recommendations and service of your YORK engineer. Call him *early* in your planning or write — YORK CORPORATION, subsidiary of Borg-Warner Corporation, York, Pennsylvania.



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EARLY TELETYPEWRITER



TELETYPE MODEL 28 PRINTER

50 YEARS THAT CHANGED THE PICTURE

The need for a reliable printing telegraph instrument that would provide a typed record of the message for both sender and receiver brought the company now known as the Teletype Corporation into the picture in 1907. From the halting performance of the original page printer to the smooth 100 words per minute of today's precision equipment has been a major step in communications.

But today Teletype equipment is often far more than a communication instrument. It is a basic element in production control systems . . . its ability to transmit and reproduce text and punched tape is harnessed to office automation . . . it provides a "conveyor system" for channeling complex raw data to a computing center thousands of miles away—and getting the answers back in a twinkling.

Indeed, Teletype machines have made many of the dreams of 1907 a daily part of today's business world. And the horizons widen daily as new dreams occupy our engineers and keep our laboratories humming.

If you would like a copy of our booklet, "The ABC's of Teletype Equipment," write to Teletype Corporation, Dept. BW-3, 4100 Fullerton Ave., Chicago 39, Illinois.

1957 Golden Anniversary Year



TELETYPE CORPORATION

SUBSIDIARY OF
Western Electric Company

scraper now marketed is a 518 HP twin engine machine driving on all four wheels.

There are now "super" tractors of 400 HP for push loading rubber-tired scrapers. This team moves 250 cubic yards per hour, which is a 45% productivity gain in only two years.

Thus, the horsepower and capacity race in earthmoving equipment has resulted in almost three times greater productivity of tractors and scrapers used in earthmoving, compared with postwar equipment. . . .

ALAN S. McCLIMON
MANAGER, SALES DEVELOPMENT
GENERAL MOTORS CORP.
CLEVELAND, OHIO

Delighted Hams

Dear Sir:

As a past president and present secretary of the Heart of America Radio Club, Inc., of Kansas City, Mo., please accept my congratulations on a most concise and effective presentation of amateur radio in Personal Business [BW—Feb. 2 '57, p125].

The Heart of America Radio Club is one of the oldest of such clubs organized by amateur radio operators and persons interested in amateur radio, that has remained active since its inception. . . .

L. V. LEUPOLD
ASSISTANT SECRETARY
BUSINESS MEN'S ASSURANCE CO.
KANSAS CITY, MO.

Dear Sir:

Personal Business [BW—Feb. 2 '57, p125] was very interesting to me personally. As a recent convert to "ham" radio . . . I can attest to its absorbing interest. Also, I can attest to the fact that it is not necessary to invest a very large sum of money to achieve a lot of results. . . .

W. A. SIMKINS—KSBB
BARTLESVILLE, OKLA.

Dear Sir:

. . . Congratulations and chalk up one more success . . . you will be receiving "73" (best wishes) from many amateurs I'm sure and some may even send "88" (love and kisses). But it was a helpful lift to many who do a great deal of good.

W8EES
CLEVELAND, OHIO

Fleeting Figures

Dear Sir:

. . . We think that your article "Grooming Transistors to Crack

...or
get her
a new



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Send for free booklet "Noise Never Comes Between Them" (RN8719), Remington Rand, Room 1304, 315 Fourth Avenue, New York 10.



IN GOOD TIMES OR BAD

Paper is needed whatever the times. In good times the paper industry prospers first. In bad, it suffers least. In fact, through the boom and bust and boom of the last thirty years, paper production has grown at the average annual rate of 720,000 tons. Both growth and stability characterize the industry.

Since 1870, Huyck (pronounced Hike) has kept pace with paper industry expansion. F. C. Huyck & Sons are leaders in the manufacture of papermakers' felts, and papermakers' felts are used on every paper machine in the world.

A Huyck felt is a precision-made fabric which may be woven as wide as 55 feet and as long as 300 feet, and it may carry a price tag close to \$5,000. So vital is the "right" felt that Huyck engineers analyze each machine and process before they design and custom-fabricate this essential machine part—which has an average life of only about three weeks.

Huyck's highly specialized technical knowledge and manufacturing equipment distinguish the company in its own industry. Huyck's preeminent research work and field experience have established the company's engineers as recognized consultants to papermakers.

Huyck continues to grow as an integral part of the prospering paper industry.

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WALDORF Instrument Co. Division Plants
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and Dix Hills, L. I., New York

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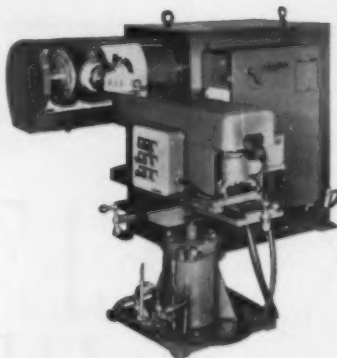
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BRUSHING MACHINES • FOUNDRY MOLDING MACHINES

the Big Volume Markets" [BW—Feb. 2'57, p66] is one of the most accurate and complete, within its defined scope, ever to appear. You are certainly to be highly complimented for a superlative job in giving a comprehensive picture of a turbulent subject.

So fast-moving is the transistor business that while you were probably in final stages on this article, your figures on current transistor prices were obsoleted. Texas Instruments I.F. ("high frequency") germanium transistors used in radios are now as low as \$1.05 each in quantity. And the average price per transistor of a complete radio "kit" is now \$1.15. . . .

CLARK W. FISHEL
MERCHANDISING MANAGER
TEXAS INSTRUMENTS INC.
DALLAS, TEXAS

Adding Fuel to the Fire

Dear Sir:

I wish to take exception with Paul Kayser, president of El Paso Natural Gas Co., for saying natural gas is a luxury fuel and that people as a whole should pay a premium price for it [BW—Jan. 26'57, p76].

The heat pump is now competitive in commercial applications and will soon be competitive in the domestic market, especially on the West Coast. Electricity is the luxury "fuel." Electricity can now economically warm in winter, as well as cool in summer.

When a device utilizing natural gas is developed, that will cool the home in summer, as well as warm it in winter, then natural gas can take its place as a luxury fuel.

ROBERT R. LEAVITT
WILMINGTON, DEL.

Oil Industry Study

Dear Sir:

While your article on business histories [BW—Feb. 2'57, p129] had many good points to make . . . you neglected to include in your listing of academic dignitaries, Dr. Harold F. Williamson of Northwestern University's Center for Social Research.

Several studies have already flowed from his organization, and he is now engaged in one of the most ambitious, a five-year project analyzing the history of the oil industry in America.

WILLIAM G. PANSCHAR
ASSISTANT PROFESSOR
UNIVERSITY OF CALIFORNIA
BERKELEY, CALIF.



Welding steel plate on a 300-ton open hearth ladle at the W. B. Pollock Company, Youngstown, Ohio.

We increased our fire insurance coverage 50% and cut premiums 69% with "Automatic" Sprinklers

... William B. Pollock Company

Here are the figures:

5-YEAR TOTAL PREMIUMS

Building and Contents—before Sprinklers	\$40,214.00
Building and Contents—with "Automatic" Sprinklers and 50% added coverage	12,560.00
5-YEAR SAVINGS	\$ 27,654.00
(Without sprinklers, premium with added coverage would have been \$60,416.00)	
Business Interruption Insurance—without Sprinklers	\$ 5,880.00
Business Interruption Insurance—with "Automatic" Sprinklers	1,520.00
5-YEAR SAVINGS	\$ 4,360.00
TOTAL SAVINGS FOR 5-YEAR PERIOD	\$ 32,014.00
(Cost of "Automatic" Sprinkler System \$44,496.00)	

"As manufacturers of heavy equipment for blast furnaces, steel mills, chemical and petroleum plants, our property is not ordinarily considered a "combustible occupancy." Yet, in our case it was highly desirable for us to protect our buildings and equipment and safeguard our continuity of production. This our "Automatic" Sprinklers will provide—plus returning the insurance savings shown.

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United Services Automobile Association office building,
San Antonio, Texas. Architects: Phelps & Dewees & Simmons,
San Antonio; Ailee B. & Robert M. Ayres, San Antonio;
Mechanical engineer: Gerard M. Baker, San Antonio; Electrical
engineer: Beretta, Greenlaid, Clark & Collins, San Antonio;
Prime contractor: Henry C. Beck Construction Co., Dallas;
Mechanical contractor: A. J. Monier Company, San Antonio.



The right atmosphere calls for quality air conditioning "custom" controlled

WHEN you plan to build—or modernize—you're sure to want year-round air conditioning—and complete, coordinated control.

For the right atmosphere can help assure improved working efficiency and health of your employees, and customer good will.

The right atmosphere calls for quality heating, ventilating and cooling, planned for the specific needs of your business and individual spaces of your building.

And it calls for a carefully-planned Honeywell control system, *customized* to the building. A good example on both counts is the new home office of the United Services Automobile Association in San Antonio.

Here the Honeywell installation provides individual office temperature control with a thermostat in each office to meet individual preferences. And in each of the building's working spaces strategically-placed thermostats assure comfort no matter what the activity.

You need Honeywell *custom* control to protect your investment in air conditioning equipment, for without quality control, no system will operate as it should—effectively, economically.

To learn how Honeywell custom control can help bring the right atmosphere to any building, new or existing, call your architect, engineer or local Honeywell office. Or write Honeywell Dept. BW-3-118, Minneapolis 8, Minnesota.

Master Control Panel Drastically Cuts Operating Costs



Central supervision of year-round indoor environment in the United Services Automobile Association building is provided by this Supervisory DataCenter control panel. By coordinating and centralizing all controls, it allows one man at one location to supervise comfort throughout the building, and to monitor and control operating equipment in the air conditioning system. It adds efficiency, prevents expensive equipment breakdowns and reduces demands on maintenance personnel's time. In this manner the Supervisory DataCenter does much to cut the cost of air conditioning, and at the same time to make it more effective. Only Honeywell has the experience and the complete control line to provide an installation that so effectively ties in all types of control, so well adapts to any building.



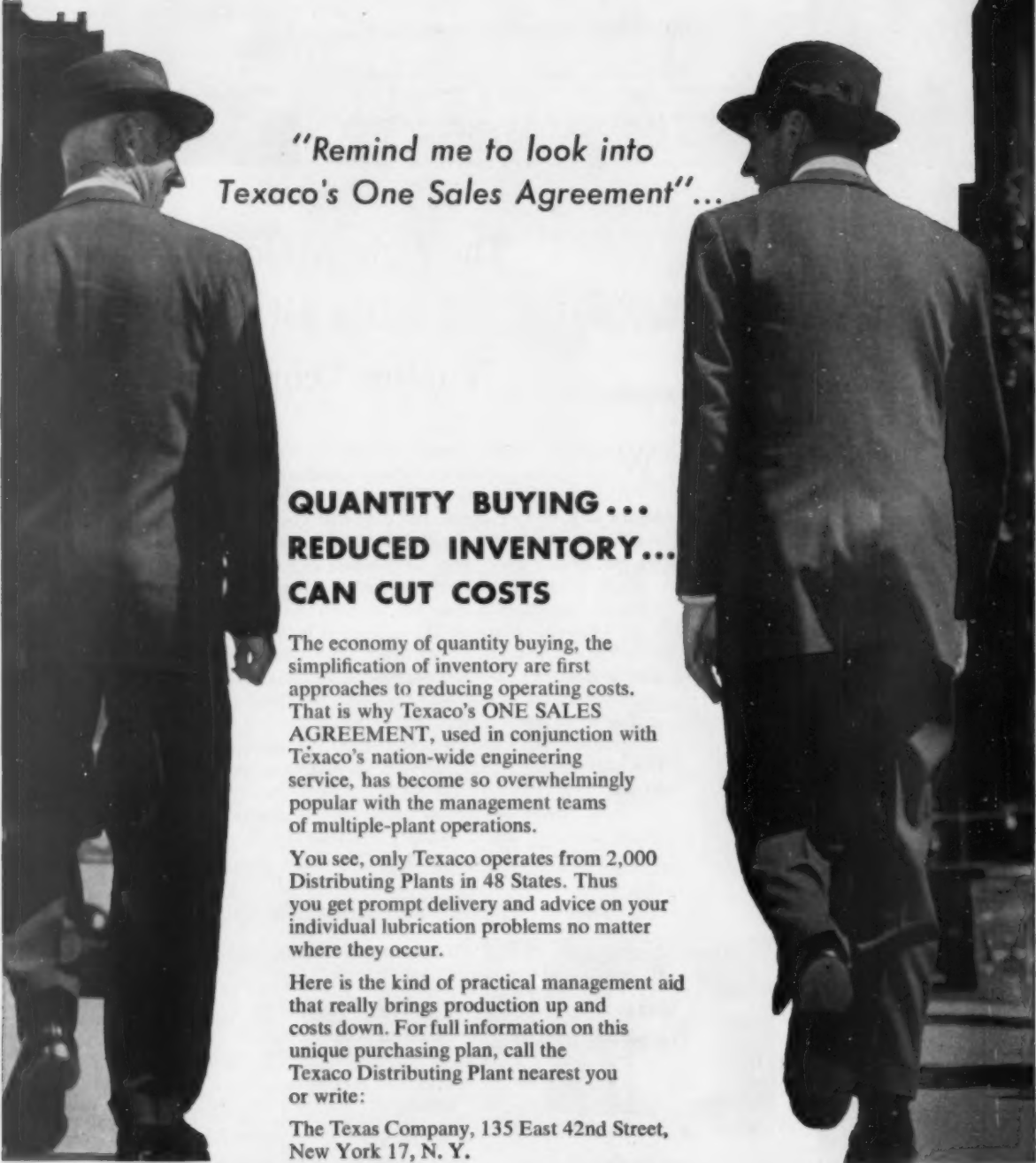
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World's Most Popular Thermostat*

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Individual thermostats in large rooms, like the executive suite reception area shown at left, maintain comfortable temperatures at all times, provide the right atmosphere for cordial customer relations. And in the private offices adjoining the reception area, individual office thermostats give occupants finger-tip control of the comfort level they prefer.



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Texaco's One Sales Agreement"...*

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REDUCED INVENTORY...
CAN CUT COSTS**

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BUSINESS OUTLOOK

BUSINESS WEEK

MAR. 2, 1957



Business is a great deal better today than it feels to most people. Sentiment is more damaged than activity.

The trouble, of course, is that let-down feeling.

Activity has slipped a bit from late-1956 levels. A lot of manufacturers who thought they might never catch up with their orders have caught up.

Perhaps such a slowing down in business should have been expected to result from tight money. Certainly if credit policy was to take hold, the pinch logically could have been foreseen at tax time.

For, at such a juncture, what's more logical than to trim sail?

A good way to do that is not to replace inventory as it is used up. And that's just what we have been experiencing.

Any unexpected turn in business creates a hollow sensation, and a turn for the worse on inventories does this most emphatically.

Demand suddenly slackens. Tightness in raw materials turns to ease. Strength in prices evaporates.

Then, confronted with a suddenly changed market, the buyer decides he should have been letting his supplier carry the load for him all along. He gets just that much more cagey.

Prices now clearly reflect the changed business conditions.

People who still are talking "higher prices" are looking at cost-of-living items at retail. To more and more manufacturers and businessmen, the price story is either "stabilization" or "softening."

In just the last few weeks, a sensitive index of industrial raw material prices has lost all the gain of the preceding six months.

Business today faces its greatest danger (and this danger, fortunately, doesn't look too real) through management decisions that might flow from a period of temporary overcapacity.

You've heard people ask, "What are we going to do with all the new capacity that's being added?"

With money hard to raise and costs sky-high, there's always the chance that a slackening will cause a re-examination of budgets.

Several industries now are running substantially below capacity.

Copper fabricators are about 25% behind a year ago. Cuts in aluminum extrusion prices this week emphasized at least a temporary overcapacity. Textiles haven't bettered January levels. Paperboard producers have slowed down while they work off excess inventory.

To such a sampling you might also add major appliances. Partly due to a further lag in home building, it would seem that appliance output is still being reduced instead of showing spring gains.

Autos, expected to lead the economy higher in 1957, haven't done very much leading up to this point (page 25).

BUSINESS OUTLOOK (Continued)

BUSINESS WEEK

MAR. 2, 1957

Combined January-February output was only about 3% over 1956.

And Detroit, for its part, scares easier than it did prior to last year. The industry is backing off from earlier sales estimates and apparently will be satisfied with 6-million to 6¼-million.

Actually, this auto year mustn't be written off yet.

During March, the output gain over last year (when the cutbacks began to get deep) should run at least 10%. If retail demand responds fully to improving weather, the margin could be a good deal better.

And remember, even if auto sales this year do only a little better than last, output will climb fairly substantially. That's because registrations topped output by more than 150,000 in 1956.

When it comes to capacity, some of the auto industry's "postponements" of expansion projects reflect changed viewpoints on needs.

After building nearly 8-million passenger cars in 1955, the auto people began to think the 10-million-a-year goal was in sight. But 1956 ended those dreams.

Yet the industry, before this, has run for some weeks at a rate as high as 9-million a year (and could do so now, without any more expansion). Meanwhile, its current operations aren't more than a 7-million rate.

—•—

Steel provides an example of an industry that would be hurting if it did much better, yet whose outlook many seem to regard dolefully.

Operations for the first quarter can hardly average much under 95% of capacity and probably will top that.

It is unlikely that the industry can run much above 95% without sacrificing some efficiency.

As to the second quarter, Iron Age reported this week that mill men have taken stock of business booked or in sight and "a rate close to 90% of capacity is indicated."

The one unsatisfactory thing about steel operations, it must be said, is the fact that they are receding.

This week's outturn is put at 2,456,000 tons, 96% of capacity.

That's the lowest for the year—lowest, in fact, since the middle of last September except for holiday-hampered Christmas week. Yet it is only a shade below a lot of weeks during that period.

—•—

New orders for machine tools show the slower rate of growth in plant expansion and modernization (a slowing that had been fully anticipated in view of the pinch on new capital and materials).

Tool builders booked \$63-million for orders in January, slightly more than 40% below the year-earlier level.

—•—

Housing holds the greatest threat to the boom continuing through 1957 if builders' misgivings are justified (page 23). Not only would a drop to 900,000 starts cost a lot of on-site jobs, but it would cut deeply into suppliers of materials, fixtures, and furnishings.



Mining the skies

Nitrogen from the air has become a key to a plentiful supply of stainless steel

BEAUTIFUL, enduring stainless steel owes its rust-free life to the alloying metal called chromium. Other alloying metals . . . manganese and nickel . . . are vital for added strength and endurance.

Ever-increasing demands for nickel have threatened the supply of stainless steel. But the people of Union Carbide have provided an answer. Nitrogen from the air—combined with chromium or manganese through metallurgy and added to the molten steel—helps nickel go twice as far . . . making it possible, with the same amount of nickel, to greatly expand the chromium-nickel stainless steel output.

This is only one in a long line of contributions from Union Carbide's metallurgists during a half century of alloy making. Fifty years ago there were only a few

types of steel. Today, through the use of such alloys as chromium and manganese, there are tailor-made steels to meet every need.

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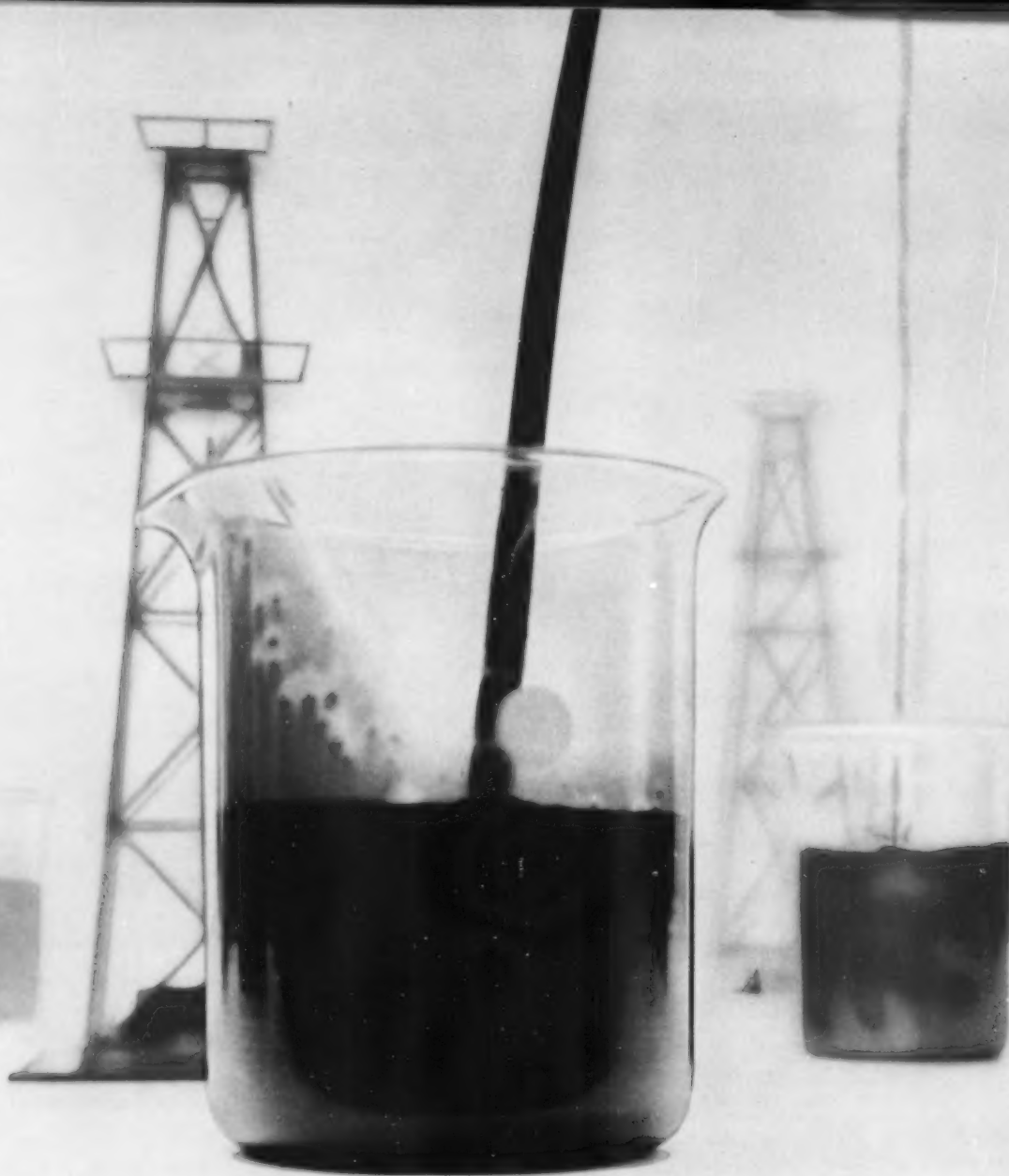
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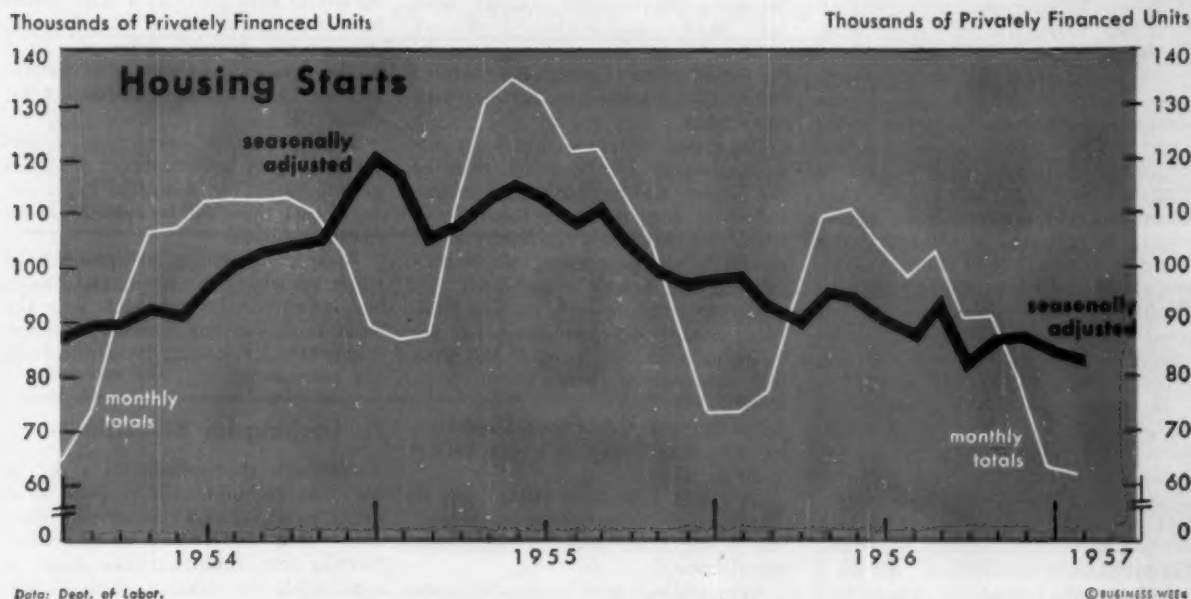
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'57 Homebuilding Points Down

● Builders and lenders agree housing starts will slide again this year; the question is, how much?

● Builders mostly blame tight money, but lenders see credit easing, insist there's a fall-off in demand.

HOMEBUILDING, already in a two-year slide-off (chart), looks as if it's going to go right on falling in 1957.

What's more, if scores of gloomy builders and mortgage lenders are to be believed, the rate of descent may grow steeper. In fact, some look for it to drop precipitously.

This week, BUSINESS WEEK reporters asked hundreds of big and little builders and lenders for their plans. The queries turned up an overwhelming number who figured on fewer new homes this year.

Expectation on just how much activity would fall varied widely, however. The range went from about 10% fewer houses started than in 1956 to 50% below, with a few builders saying they were considering sitting this year out entirely. The average estimate was about 20% down. If this is borne out, it would indicate approximately 900,000 starts nationally this year.

• **Reasons**—The reason for the decline given most often by builders is "tight

money." Most believe the urge to buy homes is still lusty, but the ability to arrange financing is lacking.

Many lenders, on the other hand, see signs of an easing in home mortgage credit. What's causing housing starts to fall, they insist, is slackening demand.

• **Complaint**—Builders who take the gloomiest view give as their main reason the failure of the government to raise the interest rate carried by Veterans Administration home mortgages. Last week the House Veterans Affairs Committee turned down an Administration-backed proposal to boost the interest rate from 4½% to 5%.

"The picture is very, very dark," declared a San Francisco builder. "We've been putting up over 1,000 houses a year for several years, but haven't started any since the first of this year."

"Last year, 99% of our sales were with government-insured mortgages, with VA mortgages running over 70%. But we can't have an effective program

when the interest rate on mortgages is pegged at 4½%, so we don't know when we'll build."

• **More of Same**—Across the continent, Anthony Zummo, a builder on Long Island, N. Y., and chairman of the Long Island Home Builders' Institute, reported: "In 1955 there were between 35,000 and 40,000 homes built on the Island. In 1956 there were about 22,000. This year we had figured on 20,000."

"But if Congress doesn't increase the VA mortgage interest rate pretty quickly, mark my words, that figure will be cut to 10,000."

Zummo's statement came on the heels of a letter sent to the Veterans Affairs Committee by the Dime Savings Bank of Brooklyn. In this letter the bank's president, George C. Johnson, said, "the Dime Savings Bank of Brooklyn has currently" invested nearly \$335-million in VA home loans. In addition, we have approximately \$100-million outstanding in advance VA mortgage commitments.

"However, since it is the duty of this bank . . . to invest funds of its depositors to produce current market returns, we must now reexamine and probably withdraw the approximately \$100-million . . . and turn to other investments which will produce a bet-

ter return than the present unrealistic low yield from VA loans."

- **Better Return**—A competing spot for investment frequently mentioned was in government-guaranteed mortgages on ships. The rate is higher, there's only one big loan rather than lots of little ones—and because the payments are fewer and bigger, the costs of servicing the mortgage are less.

- **Discounts**—The rate on VA mortgages is now so far out of line that lenders don't like them even at a discount. Many lenders across the nation have for a long time refused to issue VA mortgages unless they were discounted. This means that if a builder wanted to sell, say, a \$10,000, 4½% mortgage in today's tight money market, he would get something less than \$10,000 for it. If this extra cost was not passed along to the home buyer by raising the price of the house, it represented a cut in the builder's profit.

In recent months this discount on VA mortgages has been soaring to the point where some banks and lenders dislike the looks of the whole deal and refuse to get involved. The situation isn't nationwide, but where it exists it has generally killed building under the VA program.

In Louisville, for example, one builder reported a lender asked him for a 12% discount—which he refused. While this was extreme, builders elsewhere said they stopped accepting home buyers under the VA program when discounts went as high as 8% to 10%.

I. Money and a Mass Market

With VA loans apparently dying out across the country, the next most popular form of financing is through loans guaranteed by the Federal Housing Administration. Late last year the FHA raised its interest rate from 4½% to 5%.

Compared with the 2% down payment required under the VA, however, FHA loans call for 7% of the first \$9,000 and 27% of the balance. A Hartford builder sums up what this means: 90% of his customers are veterans who want to buy a house under the GI program—because of that now theoretical 2% down payment. Of that 90%, between 50% and 75% cannot qualify cashwise for FHA financing. This leaves a very thin market.

Undoubtedly because of the increase in interest rates, applications for FHA mortgages on new homes have turned up recently. There were 10,459 applications in January, 36% more than in December, 1956, but still about 30% under January, 1955.

- **Lows and Highs**—Actual starts in January, according to the National Assn. of Homebuilders, totaled 7,800 under the FHA program for a three-

year January low, 12,000 under the VA for an 11-year low for the month, and 42,400 under conventional financing. This was one of the highest January totals ever for conventional financing.

- **Popular**—Conventional financing is becoming increasingly popular with both builders and lenders. It doesn't involve the troubles and red tape experienced with government-insured loans. Also, interest rates fluctuate with the market.

But it does require sizable down payments—usually one-third the price of the house. And to obtain such financing these days the buyer must be a prime risk; frequently the lender won't provide a mortgage unless the buyer's salary is five times the payments. Finally, the rates are high. A San Francisco savings and loan company, for instance, makes no loans at less than 6%, does most of its business at 6½%, some at 7%.

- **But Limited**—Conventional financing, however, doesn't provide a mass market of home buyers.

As a Salt Lake City banker put it, "Banks loan to people with money, and people with money want a high-priced home."

But a higher price means it's even more difficult to find buyers who can meet available financing terms. So many builders are putting up far fewer houses—but bigger, custom-built ones. In this market, the competition is tougher than ever because buyers are choosier and can often wait.

- **Casualties**—This is causing a few builders in most cities either to drop out of homebuilding altogether or get dangerously close to the edge. An official of the Niagara Frontier Builders Assn. in Buffalo reported, "if things don't change, 20% of the builders now operating around here will be going back to their old trade" (some other phase of construction, such as plumbing, or the like). "Since the start of the year," he added, "six builders have given up."

In many cities, builders insist only the marginal brethren are in trouble.

- **Other Causes**—While the number of people who think homebuilding will decline this year is overwhelming, tight money is not always the only reason given.

"There has been entirely too much talk of inflation and deflation," commented builders and lenders in half a dozen places. "There's all this damn talk out of Washington," declared a builder in Louisville. "Sellers think it's a bad time to sell, and buyers think it's a bad time to buy."

Elsewhere, builders and particularly lenders think homebuilding is suffering from a saturation achieved a few years ago by circus promotions and "no

money down" deals. Others believe that too many would-be buyers are already saddled by too much debt.

An insurance firm correspondent in Philadelphia told a reporter: "It really is a good thing the government tightened up on credit. Otherwise by now we would have piled up a huge inventory of houses at a time when housing demand has obviously fallen off. As it is, the number of homes on the market is a lot closer to the real demand for them."

- **Easing**—In this connection, a preponderance of lenders report money is getting easier. As industrial expansion is cut back there will be more funds for homes, said one.

Most of this money will probably be made available for conventional financing, however. To get back into the mass home-building business, builders everywhere are looking for action from the government.

II. Looking for Remedies

Although the outlook for a rise in the VA rate, under the program as it exists today, is now exceedingly dim, there may be a way around this. Within the Administration there is now being circulated a draft of proposed legislation to expand FHA and let it take over VA housing programs. Presumably, the proposal would let FHA keep VA interest rates the same as those on FHA mortgages, although it is understood it would not impair other GI home benefits such as low down payments and long-term mortgages.

Also on Capitol Hill is a proposal by Senate Democratic Leader Lyndon B. Johnson and 40 other Senators to give a temporary shot in the arm to the Veterans Housing program. They would dip into the reserve fund of the National Service Life Insurance Program to a maximum of 25% of the fund's total for direct loans to servicemen wishing to buy homes.

Furthest advanced at the moment is a proposal concerning the Federal National Mortgage Assn. Banking Committees of both Senate and House have approved a bill to give FNMA emergency authority to raise another \$500-million in the private securities market. The money would be used to buy FHA and VA loans in the so-called "secondary market." FNMA is currently buying these mortgages at the rate of about \$140-million a month, and is now about to run out of money.

New money would enable Fannie Mae to continue buying FHA and VA mortgages from lending institutions. Then lenders would be able to continue accepting them from builders, keeping the servicing chores on which they can make a profit.

Auto sales LAST YEAR lined up like this—by companies and brand names

Company and Brand Names	Total % of Market	Rank Among Makes	Number Registered
General Motors Corp.	50.78		3,024,286
Chevrolet		1	1,565,399
Buick		3	529,371
Oldsmobile		5	437,896
Pontiac		6	358,668
Cadillac		9	132,952
Ford Motor Co.	28.45		1,694,108
Ford		2	1,375,343
Mercury		7	274,603
Lincoln		14	42,598
Continental		19	1,564
Chrysler Corp.	15.48		922,043
Plymouth		4	483,756
Dodge		8	220,208
Chrysler		10	106,853
De Soto		11	100,766
Imperial		18	10,460
American Motors Corp.	1.93		115,105
Rambler		13	70,867
Nash		15	31,129
Hudson		17	13,109
Studebaker-Packard Corp.	1.76		104,798
Studebaker		12	76,402
Packard		16	28,396
Foreign Makes	1.53		91,042
Miscellaneous	0.07		3,866
Total	100		5,955,248

THIS YEAR'S model lineup



Knocks General Motors down ...



Gives Ford Motor a lift ...



And Chrysler a comeback ...

The Auto Market at Midstream

● GM has lost ground, and estimates of the total market are dropping towards 6.25-million.

● It's a new kind of market where the dealers—and unions—are calling the tune.

A Detroit businessman looked up in astonishment from a study of his own company's figures as a visitor mentioned "GM's troubles with sales."

"Troubles?" he echoed. "We should have such troubles."

General Motors' lag in grabbing its share of the market early in the auto sales year is the chief topic of conversation in Detroit these days. But the

"trouble" is often misidentified. Actually, GM is being measured against its own past performance rather than against its competitors.

For three years running, including last year (table above), GM has had more than half the total market. In January and February, it still sold around 45% of the total, but the Detroit bull sessions are paying more attention to the five-

point drop than to the 45% retained.

• **New Line-up**—Clearly, the sales positions of GM, Ford, and Chrysler seem to be breaking away from the pattern of the past three years. Ford has ousted Chevrolet from first place; Plymouth has climbed over Buick into the third slot.

But more important than any popularity race is what may happen to the 1957 automobile market if GM's sales stay sluggish.

• **Lost Sales**—Suppose, for example, that GM fell 300,000 units short of last year's sales because prospective customers either didn't like a GM car or couldn't afford one this year. Perhaps half of these buyers might switch to

competing makes; the other half would simply postpone buying for another year. Thus, industrywide sales would drop by about 150,000 cars.

GM carries such weight in the market that such a development would doom the industry's chance of reaching the 6.5-million estimate made by a consensus of auto seers early in the model year. Partly because of GM's sales trend, partly because the whole market is developing more slowly than predicted, most industry forecasters now lean toward a sales total of 6.25-million, though Ford sticks to an estimate of 6.6-million.

• **1957 Trend**—So far, sales are running about even with last year—at an annual rate of 5.8-million cars. If a spring upturn is taken into account—there wasn't any last year—the current rate can be adjusted close to the 6.25-million figure.

That would be a healthy gain over last year's 5,860,000 of domestic car sales. It would be a 7% increase, compared with about 5% gain predicted for gross national product. But auto people would take small comfort from this; they can't forget 1955, when sales of 7.2-million cars were nearly 30% above the previous year. Still, the early ups and downs wouldn't be such a hot discussion point if it weren't for "GM's troubles."

I. The Pace-Setters

When General Motors showed its 1957 models last fall, a GM executive was asked why his company had designed completely new bodies for Cadillac, Oldsmobile, and Buick without departing noticeably from its 1954 styling characteristics. He replied: "We think Ford and Chrysler are getting too far ahead of the customers' tastes."

About 2-million 1957 cars have been sold now, and it's obvious that GM guessed wrong. As of mid-February, Ford Motor Co. apparently had 31% of the market, Chrysler Corp. nearly 21%, the smaller companies and foreign makes a shade over 4%—and GM was down to about 44%.

• **The Main Shifts**—Paced by the Chrysler Div.'s 28% gain over the year-earlier period, Chrysler Corp. sales rose nearly 10% over a year ago in the first 20 days of February. The company was particularly pleased by sales of Plymouth and Imperial, at opposite ends of the line.

In December, Plymouth outsold Buick by 3,600 cars, and it just about tripled that margin in January. Through mid-February, Plymouth held more than 10% of the total market. The Imperial isn't yet challenging Cadillac, but it has already sold more cars than in the whole 1956 model year.

In January, Ford Motor Co. delivered 123,000 Fords, compared with 107,000

a year previous. It held a margin of about 8,000 cars over Chevrolet, not quite so wide a margin as in December. Mercury and Lincoln are also ahead of their year-ago pace.

At General Motors, Cadillac continues strong, with the best January sales in history, and Oldsmobile and Pontiac have hit their stride after a stumbling start due to labor and production troubles. GM's major problems are its two best-sellers: Chevrolet and Buick.

• **Reefing Chevy's Sails**—Chevrolet strategy seems to be to hang on as close as possible to Ford until fall. With the opening of the 1958 model year, Chevy will be selling an all-new car against Ford's revised '57 car. With about three months in which to sell the '58s in calendar 1957, Chevrolet hopes to regain its No. 1 spot for the year—provided Ford hasn't already pulled too far ahead.

II. The Signal-Callers

Meanwhile, Chevy has cut three of its 12 plants down to four-day work weeks and three others to only three days. This knocked more than 6,000 cars out of the production schedule. Three plants were announced as shut down for "planned construction," but the other three were admittedly pinched back to adjust dealer inventories, which are said to exceed 150,000 Chevrolets.

That's the year's first demonstration of an avowed GM policy: to keep dealer stocks balanced with demand.

There will always be an argument about whether or not the 1955 market was oversold by Detroit's force-feeding of cars to the dealers, but it's obvious that sales wouldn't have hit the record but for the factories' pressure on dealers. Memories of what happened to sales last year are also fresh. Now GM is letting the dealers call the signals, is actually building cars to dealer orders. All companies claim they do this, but they often forget.

• **Strategy**—GM has three good reasons for carrying out the practice:

• It is sincerely trying to improve relations with dealers (page 43), and it seldom does things halfway.

• It's good economics to smooth the peaks and troughs of production.

• GM has its eye on 1958 labor negotiations. A repetition of last year's layoffs would certainly be used by the United Auto Workers in arguing for higher layoff benefits.

These factors are being kept in mind also at the other companies, but the others haven't had to worry yet. In effect, the dealers and the unions are determining production nowadays. This may sustain the high price level in the retail market, but it may produce strange effects before the year is out.



CAUGHT in bond market squeeze, financing

State Seeks

New York's proposal is to cut the steep interest rates by channeling school district bonds to an independent Authority. It, in turn, would sell its own bonds to public on better terms.

For a decade since World War II, taxpayers from Westchester to the West Coast have been struggling to build school space for the burgeoning crop of mid-century babies. Their backs have been bending further and further under the load of finding funds to finance new classrooms.

Through the first half of the decade, they had one consolation: They could borrow money for new schools readily and cheaply. But in the last few years, that comfort has gone. The increasing pinch on the money supply and the unceasing demand for new schools have forced interest rates on school bonds to record peaks. Many communities haven't been willing to add to their steep tax burdens by borrowing in this market; some actually haven't been able to borrow because of legal limits on the interest rates they can pay. As the squeeze grows more severe, more sub-



for new schools like this one is costing communities more and more in interest payout. New York wants to ease the pressure, so . . .

Cheaper Money for New Schools

urbs, towns, and villages find they can take only one line: Despite their needs, they must postpone new school construction.

This week, one state moved to relieve some of the pressure on its school districts with a plan that promises to spread to many other parts of the nation. A committee appointed by New York's Gov. Averell Harriman proposed that New York State set up a School Financing Authority to help hard-pressed school districts raise money for new classrooms. Its recommendations apply only to New York. But its idea is likely to set a national pattern—whether Congress passes or rejects a bill providing federal aid for education.

• **Field**—The New York committee's idea is that the School Financing Authority should:

- Buy construction bonds from those school districts that would otherwise have difficulty marketing them publicly or would have to pay steep interest rates on them.

- Raise money for these operations by public sale of its own bonds, with a state appropriation to provide a reserve.

This, says the committee, is the best way to aid the state's school districts

through the current era of tight money that is putting such pressure on borrowers in the municipal bond market (BW—Dec. 8 '56, p119). That pressure is today just a little lighter—interest rates are down a few points—than when Harriman named the committee.

- **Pressures**—Last November, a few weeks before the committee first met, the pressure reached a peak when one bond issue offered by a New York school district sold at an interest rate of 4.3%. A month earlier, the average rate for New York school bonds had been 3.4%. Three years ago, it was 2.3%. Economists on the New York committee don't expect the school bond interest rate will return to its 1953 level "in the foreseeable future"—meaning as long as the nation's economy stays in high gear.

Meantime, New York school districts plan to borrow up to \$300-million a year in the next few years for school construction. If they could reduce by 1% the interest rate on each \$1-million worth of those bonds, which would mature serially over 30 to 40 years, they could cut the local tax burden by \$155,000 a year.

- **Basis for Gain**—This is precisely what the proposed School Financing Author-

ity would do. It wouldn't be backed by the state's full faith and credit; instead, its credit would rest on (1) its portfolio of local school bonds, (2) its reserve, made up of state appropriations and income from the investment of those funds, and (3) its authority to use state school-aid funds to cover any default by a school district whose bonds it holds.

More important are two less tangible factors:

- Though the state wouldn't legally back the Authority, most investors guess that the state would never sit back and permit the Authority to default on its bonds;

- Investors who have never heard of East Overshoe School District and would be wary of its bonds are much more likely to be attracted by bonds bearing the name of a statewide agency.

These factors, say municipal bond specialists, should give the Authority's bonds an "A" rating right from the start. The average rating for New York school district bonds is "Baa." The difference in ratings, say the specialists, should add up to a saving of at least 1% in interest rates for the Authority's bonds.

As the plan of the proposed Authority

now stands, almost all this cut in interest rate will be passed on to the school districts. Those that choose to sell their bonds to the Authority will pay interest to the agency at a rate only a fraction higher than the agency itself must pay on the bonds it sells. The difference, which may vary from one-quarter of 1% to one-sixteenth of 1%, will go into the Authority's reserve.

• **Pattern**—As pressure on the nation's schools mounts, many more agencies like this are likely to be set up in other states. If a federal aid for education bill is passed by Congress, there's likely to be a rush to establish these agencies. Both aid for education bills include provisions promising funds for such state agencies—to the extent of half of each year's debt service on the obligations they issue.

On the other hand, if Congress rejects the bills, the same thing is likely to happen; many states seeking an alternative to federal aid will probably set up authorities similar to that proposed for New York. As long as municipal bond buyers demand high interest rates, more and more school districts will find it increasingly difficult to meet debt service charges and at the same time pay all the other bills of their schools. Moreover, the school districts will be competing more strenuously in the municipal bond market. That's plain from the U.S. Office of Education's estimate that there's a shortage of 159,000 classrooms in the nation's schools, and its admission that this figure takes no account of replacement needs and necessary future expansion.

• **Fainter Hopes**—Despite the pinch on classroom space, there's now a strong possibility that Congress again will reject federal aid for education.

On the surface, the school aid bills—one sponsored by the Administration, the other by Rep. Augustine Kelley (D-Pa.)—are moving ahead on schedule. They're now before the House Education Subcommittee. This month, the group will begin hammering out a bill that will be sent on to the full House Education & Labor Committee. The first test will come at this stage, when Rep. Adam Clayton Powell, Jr. (D-N.Y.) will probably try to write an anti-segregation rider into the bill. The committee is almost sure to rebuff him, as it did last year.

Then the really critical test will come on the floor of the House. If Rep. Powell tries again to add the integration rider, the Democrats are sure to split again on North-South lines. Republicans, anxious to go to the electorate in 1958 with a school aid act in operation, will be torn between voting against the rider and passing the bill, and voting for the rider and gaining more of the Negro vote.

The Administration is urging Repub-

licans in Congress to take the first alternative. But observers in Washington say the pressure will have to be applied much more firmly and backed by all Pres. Eisenhower's prestige if the bill is to get through. And they question whether the Administration, badgered by demands for economies, is willing to go that far.

Thus, it could be that the states will be searching for ways to make do without federal school-aid funds—and that their search will be the factor that spurs the spread of school financing authorities.

• **Operating Already**—Some states, caught by the wording of their constitutions or by unexpected patterns of development, have already set up a number of different types of agencies to ease the burden on school districts.

In California, for example, the state has been financing schools for "impoverished" school districts since 1947. There, the test for "impoverishment" is whether the district already has bonds outstanding for 95% of its bonded debt capacity. That capacity is fixed at 5% of the district's total assessed valuation. If the district meets that test, it may borrow directly from the state government to build the new classrooms it needs. The state sells general obligation bonds to finance its loans, backs them with its full faith and credit.

About one-third of all public school construction under way in California is receiving this kind of aid. In nine years, California has channeled some \$695-million to public schools by this method.

In Pennsylvania, debt limits imposed by the constitution caused the state to find a different way of aiding its school districts. The state doesn't merely finance new schools for districts in difficulties; it builds the schools completely, then leases them back to the school districts.

In Georgia and North Carolina, the state puts its full faith and credit behind issues of school bonds that it sells.

• **Middle Course**—The committee that has recommended the plan for New York's School Financing Authority has deliberately steered clear of such deep involvement of the state in the operations of local school districts. The plan would face a long delay if the Authority were to be backed by the state's full faith and credit. A constitutional amendment would be needed, and this would take three years consideration in the legislature before it could be put to a vote. And the Authority probably would do little good if it were to build schools itself or have much control over the architecture of schools. Local school districts, generally strongly jealous of their autonomy, would often rather postpone school building than submit to such controls.

A Chance

BETWEEN now and June 30, business taxpayers have a rare chance to say what they think about depreciation allowances, a subject close to the hearts of all corporate treasurers. Big money is at stake—more than \$22-billion of this year's outlay for new production facilities will come from depreciation allowances. That's about 60% of the year's capital spending.

The Internal Revenue Service is opening the door to suggestions about revision of Bulletin F, which appraises the "useful life" of some 8,000 items of plant and equipment.

The tax law establishes that the cost of plant and equipment is part of a company's cost of doing business. It allows business taxpayers to offset income by so much per year, spreading the depreciation allowances over the entire "useful life" of the equipment. But nowhere does it specify this useful life. That's where Bulletin F comes in.

• **Overriding Opinion**—Bulletin F is simply the Internal Revenue Service's guide to businessmen and tax collectors. Its opinion about the useful life of a capital item isn't supposed to be binding. In practice, however, a businessman has a hard time convincing a tax collector or a tax court that a building or a machine will be worn out and valueless much sooner than Bulletin F prescribes.

IRS recognizes two defects in Bulletin F as it now stands:

• It was written in 1942 and hasn't been changed since to conform to actual business practice.

• Revenue agents tend to apply its estimates of useful life too arbitrarily and too literally.

That's why IRS is getting ready to revise it. The bureau recognizes that depreciation allowances are the subject of more bickering between businessmen and tax agents than any other single provision in the tax laws.

• **Long Job**—IRS has appointed a committee of officials and private tax experts to draft a successor to Bulletin F. So far, members include A. B. Hossack, president of American Appraisal Co.; Carman Blough, research director for the American Institute of Accountants, and Darrell S. Parker, assistant chief of IRS' engineering and valuation branch. Two more officials will be appointed later.

The committee's first move was to invite suggestions from taxpayers. For special handling, IRS asks that a coded address be used: Commissioner of Internal Revenue, Washington 25, D. C., Attention RT:S:E:A:F.

Committee members are under no

for More Cash in Tax Write-offs

● Internal Revenue Service is starting to rewrite the table of useful life assigned to plant and equipment. It is inviting suggestions from businessmen.

● The present guide hasn't been changed since 1942, and IRS wants to conform to modern business practice.

● The trend will be toward liberalizing tax treatment, though not so much as some industries would like.

illusion about the size of the job they are tackling. They say it will take months, possibly running into 1958.

I. More Liberal Treatment

In the frantic scramble for money to pay for new plant and equipment, nothing is more important to corporate treasurers than the cash they get from depreciation accounts.

Treasury officials privately make it clear that they won't approve a wholesale shortening of "useful life" of capital goods—they fear what it would do to tax revenues over the next few years. In fact, they predict that the useful life will be lengthened in some cases.

• **Probable Moves**—Obviously, there's no chance that taxpayers will be allowed to write their plant off on any term of years they choose. That has long been the goal of many tax experts. Faster write-off has practical drawbacks that would prevent it from being used excessively, they say. If a company should elect to write off an item in less than its true useful life, it would simply have no depreciation allowance left in later years.

Despite this argument, revenue officials have no idea of leaving businessmen a completely free choice about the term of depreciation. But the over-all effect is almost certain to be in the direction of allowing faster write-off.

Officials say they want the new handbook to be based on actual business practice, not on a guess about how long a given piece of equipment might be kept in operation. They expect to determine actual practice by study of tax returns for recent years and of letters from businessmen.

Some specific cases are almost certain to be questioned. The chemical industry, for example, will argue for a shorter lifespan for much of its plant. Steel producers are unhappy about the 25-year span suggested for buildings and equipment. The 10-year composite life listed in Bulletin F for building construction equipment may

be challenged. New office machinery may turn out to have a shorter life than the 8 to 10 years now prescribed.

• **More Sympathy**—Another sore point with business taxpayers is the suspicion that some revenue agents, when they can't find anything else wrong with a return, try to impose a longer useful life for a depreciable item. When they try to cut down the depreciation allowance—in order to justify the time they have spent on the return—the fight gets long and bitter.

When the Eisenhower Administration took office, it told agents not to disturb the taxpayer's own figuring of depreciation deductions without a "clear and convincing" basis of challenge. The order pointed out that the taxpayer has a right to deviate even from the useful life listed in Bulletin F, if he thinks he can back up his own estimate.

However, agents can still demand justification of such estimates, with the burden of proof pretty much on the taxpayer, and friction continues.

"The interminable controversies over depreciation would be unnecessary," says tax attorney Joel Barlow, chairman of the tax committee of the U. S. Chamber of Commerce, "if the tax law did not make it possible for a revenue agent to speculate and second-guess the taxpayer on how long a facility will last."

Some restriction on literal-minded revenue agents may be spelled out in the successor to Bulletin F.

II. New Tax Ideas

Two other forms of tax liberalization are sure to be proposed:

• A move to apply the faster write-off provisions of the 1954 tax law to used facilities—they now cover only new plant and equipment.

• The steel industry's interpretation that the cost of an item should be written off in dollars of equal purchasing power rather than in the number of dollars originally spent.

There's a fair chance of success for

the first proposal, almost none for the second.

• **Used Machinery**—Two out of three business taxpayers have adopted the faster write-offs permitted by the 1954 law, and many of those who stuck with the old straight-line method (an equal amount of depreciation each year of the item's life) will be switching soon.

Those who have shifted are about equally divided between the declining-balance and the sum-of-the-digits methods, either of which speeds up the depreciation in the early years of the item's life. Businessmen are sure the same methods for used equipment would be adopted enthusiastically. In a report to the President last year, a special Cabinet committee on small business recommended that this change be legalized.

Sen. John Sparkman (D-Ala.) has introduced a bill to put the idea into effect. His bill would allow purchasers of used equipment to take up to \$50,000 a year in faster write-offs. But the Treasury Dept. is opposed, because of an estimated loss of around \$500-million of tax receipts.

Some private tax experts have another objection. They fear an outbreak of dummy sales of used equipment purely for tax avoidance. "Everybody would be buying and selling used machinery," Joel Barlow told a meeting of the National Industrial Conference Board, "and it would be changing hands simply for tax purposes."

• **Cost-of-Living Gimmick**—The steel industry, backed to some extent by the Machinery & Allied Products Institute, is arguing for increases in depreciation allowances to compensate for rising prices of replacements. U. S. Steel Corp., for example, says it would need \$2.15 right now for each \$1 of depreciation allowances if it was to maintain a sufficient reserve for replacements.

"The purpose of depreciation," says Ben Fairless, former chairman of U. S. Steel, "is to recover over the lives of facilities the dollars originally invested in them." Tax officials have no quarrel with this statement.

They do, however, take violent exception to the further suggestion of the steel companies and MAPI that the dollars that are thus recovered should be sufficient to buy the same amount and quality of equipment. No other form of capital, they contend, has any such guarantee against the effect of rising prices.

If an adjustment is made for owners of capital goods, they foresee, the gates will be opened to a flood of other special tax devices designed to maintain purchasing power.



TWO WITNESSES are greeted by Sen. O'Mahoney (left) before testifying at oil inquiry. Sen. Margaret Smith protested price hikes; Humble Oil's Pres. Baker defended them.

Oil Industry Is Still on the Pan

U.S. Grand Jury is set to begin a broad probe, with special emphasis on pricing system. But oilmen can claim fair success in blunting Congressional attacks.

U.S. oil companies, having met with fair success in countering charges in Washington that the emergency oil-for-Europe program is a failure, now are preparing to appear in a new drama that will open next week.

• **Broad Inquiry**—A U.S. grand jury convenes Mar. 4 at Alexandria, Va., at the Justice Dept.'s request, to investigate the production, refining, transportation, and marketing of petroleum and its products (BW—Feb. 16 '57, p. 38).

The new inquiry is bound to touch on recent increases in the price of gasoline and fuel oil. And, more important, it will dig into the oil industry's so-called "market leader" pricing system as well.

Industry critics have long alleged that major oil companies have divided the country up into pricing zones—with a different company acting as price leader in each area. A map outlining the alleged market division has long decorated the office of a leading Justice Dept. antitrust.

• **Oilmen's Defense**—Oilmen profess they have little to fear from a grand jury investigation along this line. They say that each company makes its own prices and attribute the near uniformity in prices to the competitive necessity of meeting the price set by the most efficient company in a particular area.

As for the investigation of the oil-for-Europe program, Frank Porter, president of the American Petroleum Institute, told Washington newsmen last week that congressmen will wind up "pinning a rose" on the oil industry.

The subsequent growls from Sen. Joseph C. O'Mahoney (D-Wyo.), who heads the Senate subcommittee conducting the inquiry, indicates Porter was a bit optimistic in sizing up the situation. But even the industry's critics have backtracked from earlier charges that U.S. oilmen had failed to meet their responsibilities to help Europe during the Suez oil crisis.

I. Congressional Inquiries

When the Senate antitrust and public lands subcommittees opened their joint hearing in early February, the industry was under heavy attack. Shipments from the U.S. Gulf Coast to Europe were described as falling alarmingly short of the unofficial goal of 500,000 bbl. per day. Pres. Eisenhower hinted strongly that federal intervention would be necessary unless more crude oil were made available for export by a cutback in crude runs at U.S. refineries and by an increase in production allowables in Texas. Sen. O'Ma-

honey threatened legislation providing for federal price control unless the 1¢-a-gallon increase in gasoline and fuel oil prices was rolled back.

• **Miscalculations**—But it soon became clear that the oil situation in Europe wasn't so gloomy as first predicted. High Administration officials testified that revised estimates showed that Europe would actually receive 80% of its oil requirements in the current quarter. That's more than the 75% figure that had been set as the goal.

Members of the O'Mahoney committee, and the House Commerce Committee, which has been conducting its own inquiry, have demanded to know why the government "misled" Congress and the public into thinking the oil supply situation was so critical.

Retiring Director of Office of Defense Mobilization, Arthur S. Flemming, conceded that early estimates had been unduly pessimistic. The new optimism, he said, stemmed from later, more reliable figures on actual shipments and indications refiners are going along with the request to cut back crude runs.

• **Explanation From Texas**—Ernest O. Thompson, senior member of the Texas Railroad Commission, made an impressive defense against widespread claims that the commission has refused to boost Texas production allowables in the face of the crisis. He explained that Texas did raise allowables by 241,459 bbl. a day in the period from November to February. Further increases, he said were not granted because of inadequate transportation facilities, and high gasoline stocks.

While in Washington, Thompson huddled with Flemming and Presidential Assistant Sherman Adams. A few days later, the Texas commission boosted the production allowable by 211,000 bbl. a day.

Meanwhile, Victor Hansen, the Justice Dept.'s antitrust chief, testified on Capitol Hill that a close watch is being kept on actions of the Middle East Emergency Committee, the 16-company advisory group that handles planning for the oil lift. But he expressed confidence that the antitrust exemptions granted to MEEC members are not being abused.

• **Uncertainties**—But industry officials agree that they aren't out of the woods yet.

M. J. Rathbone, president of Standard Oil of New Jersey, says delivery of anything less than 100% of normal fuel supplies is bound to hurt Europe to some extent.

And a top government official says he still isn't expecting March shipments to average more than 500,000 bbl. a day—despite higher production in Texas and refinery crude run cut-

backs of about 200,000 bbl. a day.

Some of the increased production will go to rebuild depleted stocks. If current efforts are successful to divert Venezuela oil intended for the U.S. to Europe instead, then much of the U.S. production increase will replace Venezuelan oil on the U.S. East Coast.

Finally, if the Suez Canal remains closed to oil shipments, the strain on the oil lift will grow.

II. The Price Issue

The industry's price increases have produced mixed reactions. Even those critics who consider the gasoline and fuel oil price boosts unjustified are not too disturbed by the 25¢ per bbl. hike in crude. Crude prices have gone up only once before since 1947.

- **Justifying the Increases**—But oilmen are having a much more difficult time defending the product price increases in the face of bulging stocks of gasoline. They justify them on two grounds:

- Despite the supply situation, oil product prices must reflect costs.

- Small independent refiners are in no position to absorb the crude price increases. Sen. Frank Barrett (R-Wyo.) observed that the major companies might well have faced antitrust charges of squeezing the independents out of business if they too hadn't passed on the crude price increase.

III. What Next?

Although no anti-oil legislation is expected to materialize, sniping at the industry continues unabated.

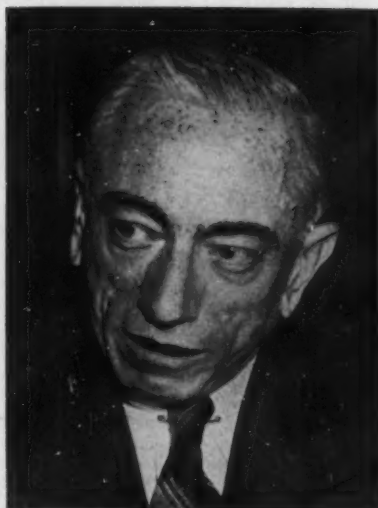
- **Threats of Regulation**—Florida electric utilities, heavily dependent on oil and gas, are threatening to convert to coal. Rep. Robert L. Sikes, Florida Democrat, says he sees "no reason" why the oil industry should not be subject to the same type of controls as natural gas. Rep. Thomas Pelley (R-Wash.) says the industry is "inviting regulation" by its price hikes.

This sentiment may be strong enough to defeat proposals to ease federal regulation of natural gas producers.

- **Spotlight on Transportation**—The oil investigations also have served to underline the fact that the nation's excess oil producing capacity—estimated at 2-million bbl. a day—far exceeds the available facilities to transport it to tide-water ports or East Coast refineries.

As a result, federal officials are giving new attention to proposals for big pipelines linking Texas to the East Coast and to Gulf ports.

Oilmen have learned something, too. Some of them think much of the current criticism of the industry could have been avoided if crude oil prices had been adjusted frequently as costs went up instead of in one big jump.



ROGER M. KYES, a GM vice-president, has launched tanker venture with . . .



ROBERT B. ANDERSON, Canadian executive. Like a lot of others, they are . . .

Racing to Build Tankers

Prospect of rich profits from hauling the world's petroleum is drawing new capital and a new breed of financiers into the booming tanker trade.

Whether the Suez Canal reopens shortly or remains closed for months, it looks as if there's a golden future for the tanker trade.

Profits from transporting oil today—especially around the African Cape—made headlines last week. At hearings in Washington on the European oil lift and the recent price increases for crude oil and products, there was testimony from Asst. Atty. Gen. Victor Hansen that certain Greek tanker owners "are making \$1-million a trip."

No one asked if the \$1-million was net profit. But it conceivably could be.

- **Details**—There are two main ways for tanker owners to make money: the single voyage or the time-chartered voyage. These days, the big killing is going to the single voyage owners. For example, a 20,000-dwt. tanker hauling oil from the Persian Gulf to the Atlantic coast of France would get about \$50 a ton for the single trip—or \$1-million. If labor costs were \$75,000 and fuel \$125,000, the profit would be close to \$750,000, allowing for other minor expenses. If the tanker's capital amortization is complete, then this figure is all gravy. The newer ships, of course, are still being amortized, and their profits are less.

A fully amortized 40,000-dwt. vessel should bring its owners even more than \$750,000, even without a rate as high as \$50 per ton. And a ship can complete six to eight voyages in a year.

Safe, but less rewarding, is the time-charter operation. For a new 40,000-dwt. tanker, built for \$7.2-million, the owner can collect perhaps about \$4 per ton a month for a four- to five-year charter. Deducting a month's income for repairs and reconditioning, that's about \$1.7-million a year. Out of that, net profit should be about \$400,000. Of course, as one owner points out: "You've got the ship, too. That's worth \$7.2-million if the market holds, and you have the advantage of never having to scramble for charters."

- **Pros**—There are two reasons why a lot of oil will probably continue to flow around the Cape of Good Hope—and help the tanker business to prosper—even after Suez reopens:

- The trend toward use of super-tankers—too big, in designs now on the boards, to negotiate the canal.

- The oil industry's fear that Nasser might be in a position to halt Suez traffic again when he sees fit.

The prospect of so bright a future has brought a boom in tanker building. In 1956 there was an 8% increase in the world's tanker fleet—adding 140 vessels and 3.3-million dwt. In addition, some 215 ships are scheduled for delivery this year. In the meantime, however, the shortage is critical. One tanker man points out: "It's the lack of tankers, not the closure of the canal, that's boosting rates."

- **Newcomers**—The sanguine outlook is also attracting a new breed of tanker

financier—the businessman who's never been in shipping before, or touched it only from afar. Typical examples are Roger M. Kyes, a General Motors vice-president, and Robert B. Anderson, head of the giant Canadian company, Ventures, Ltd. (pictures, page 31).

To be sure, Anderson has been linked with oil deals before. But both made their debut on the tanker scene by helping to form a new outfit, Trinity Tanker Corp., to build and operate the vessels.

Their associates include H. Lee White, of the law firm of Cadwalader, Wickersham & Taft; Dr. C. Y. Chen and C. T. Shen, both experienced tanker investors, and, as a limited partner, the University of Chicago.

• **Deals**—Trinity already has one ship afloat—the 20,000-dwt. Mosoil, which set sail Feb. 1 from the Persian Gulf with some 20,000 tons of oil for Japan. That trip alone will net Trinity about \$450,000.

The Mosoil was time-chartered from a Norwegian shipping company in a package deal. Trinity loaned the Norwegians \$6.1-million, in return for a mortgage on two ships the Norwegians wanted to have built. The deal was sweetened by the fact that Trinity also got one other ship outright and the time-charter rights on the Mosoil.

Trinity also contracted with the Uddevalla shipyards in Sweden to construct five 40,500-dwt. tankers, which Gulf Oil Corp. will charter at a rate sufficient to bring the owners a good return. The first of these vessels is to be ready in about two years.

There were special circumstances behind the deal with Uddevalla, which had been trying to win big tanker contracts for years. Since the yard didn't have cash to expand its building berths, Trinity supplied the lack with its order for five ships. Uddevalla reciprocated by giving Trinity a price break—it asked about \$170 a ton for the five, far below the figures up to \$100 higher quoted by other builders. General Electric will provide power units for the Swedish-built vessels.

Trinity expects to pay for its new hulls in 10 to 15 years. In the meantime, they will be earning profits for the backers.

• **In the Race**—Several other groups have been emerging as financiers for tanker ventures. Members of Dillon Read & Co., Wall Street brokerage house, have established the Barracuda Tanker Corp. Barracuda has contracted for construction in the U.S. of three tankers, all chartered by the Union Oil Co. of California.

In London, Tanker Finance, Ltd., has been founded by M. Samuel & Co., merchant bankers, to finance the building of \$84-million worth of tankers for Shell Petroleum Co. The ships

will be chartered to Shell for 24-year periods at fixed rates of hire.

• **Vicissitudes**—There's room in the tanker business for new capital such as this. In the past, freight rate fluctuations have deterred financial houses from heavy investment. And ship owners—except for the giant independents, such as Niarchos and Onassis—often couldn't replace their old vessels at reasonable costs. A few oil companies have even deserted the field. "We were too busy with the oil business to worry about handling tankers, too," says one oilman.

Now, though, with the promise of golden profits, ship owners are anxiously on the prowl for cash. Still fresh in memory is the situation a few years ago, when tankers just managed to break even, and they want assurance that money will be available before bidding on shipyard berths that are already booked as far as four years ahead. The shipbuilders, too, need more cash, to expand their facilities, and, as in the case of Uddevalla, the ship owners often have to pay this bill.

• **Stretching**—All around the globe, there are signs of expansion in the yards to meet the new demand for tankers:

• In the Bahamas, D. K. Ludwig of National Bulk Carriers, Inc., is building a yard capable of turning out oil tankers of 80,000 dwt. to 100,000 dwt.

• In Formosa, a U.S. company, Ingalls Shipbuilding Corp., has made a deal to pay \$12-million in shipbuilding equipment and operating capital for lease rights to docks at Keelung.

• In Australia, "overseas" interests have queried the government about introducing tanker construction to the southern part of the island continent.

• In Britain, Furness Shipbuilding Co., Ltd., is extending its London berths and fitting-out basin to build six tankers for Gulf Oil Corp.

• In the Netherlands, a Rotterdam company is opening a new yard to handle two 50,000-dwt. tankers under construction for a U.S. buyer.

• In Japan, fresh capital is turning the Japanese into the world's No. 1 shipbuilders.

• **Back Home**—Meanwhile, U.S. private builders are pressuring the Administration to reactivate four reserve shipyards for stepped-up construction of tankers and other freight vessels. The companies interested in leasing yards include Kaiser, Willamette Iron & Steel, Bethlehem, New York Shipbuilding, and National Bulk Carriers.

Another Rosy Economic Report

After a study of its own, Joint Congressional Economic Committee concludes that jobs, output, and purchasing power will increase in 1957.

After a month of hearings and study, Congress' Joint Economic Committee this week reached its verdict: The economic outlook for 1957 is good.

While the committee took cognizance of the nervousness that has pervaded the business community for the past 60 days, the report concluded further increases in employment, production, and purchasing power are in prospect. It felt that no general easing of inflationary pressures is in sight.

The joint committee is charged by law with the task of examining the President's Economic Report (BW—Jan. 26 '57, p. 25) to determine if stated objectives of maximum jobs, output, and purchasing power of the Employment Act of 1946 were met by the economy.

• **The Findings**—During 10 days of hearings in late January and early February, the committee called on government fiscal experts and top economists in the country to present their reactions to the President's report and to submit their own views on the economic outlook.

The committee agreed with the find-

ings of its staff that the gross national product will hit \$435-billion during 1957 (based on prices prevailing at the start of the year) as compared with the \$412-billion registered for 1956.

The committee also came up with these findings and recommendations:

(1) The economic expansion during 1956 was accompanied by widespread price increases, which accounted for 2.8% of the 5.5% increase in GNP.

(2) Maintaining price stability will be a problem in 1957. To curb general price increases, the rate of expansion of total spending must be held down to the rate of increase in real output.

(3) Taxes should be kept at present levels to maintain restraints on total demand. But there are some groups for whom Congress should not make tax revision wait until budgetary and economic conditions permit general tax revision. During the current session, Congress should develop a program to adjust the tax burdens of new and small business (see page 39).

(4) The federal government should exercise economy in its own spending programs and should reduce public



SS Sinclair Petrolore is the world's largest combination oil and ore carrier. It can move more than 400,000 barrels of crude oil. Recently, the Sinclair Petrolore gained world-wide fame by bringing to oil-hungry Europe the largest cargo of crude oil ever delivered to a European port.

Profitable sales growth calls for efficient transportation, so Sinclair has moved prudently to expand its tanker fleet. With delivery of a ship now building, Sinclair Refining Company will have more than doubled the tanker capacity it operated only five years ago. Its modern fleet could lift at one time the entire 168 million gallons of gasoline the U.S. uses each day.

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works spending substantially until inflationary pressures lessen.

(5) A study should be made of the nation's credit mechanisms and the institutional factors that determine the effectiveness of credit control, with particular attention to the uneven impact of monetary restraints.

(6) The decline in housing starts (page 23) for low and middle income families during 1956 raises serious questions about the adequacy of current government programs for promoting improvements in housing standards. The committee called on the Administration and Congress to come up with a better balanced program for advances in housing.

• **Cautionary Note**—In its report, the committee threw in one note of caution; it warned that the outlook could change rapidly "in our dynamic economy." It pointed out that rising construction costs, coupled with higher interest rates and declining liquidity, "may prevent realization of present business plans for capital replacement and expansion."

Chmn. Wright Patman (D-Tex.) tacked a footnote on to the report in which he complained that the Administration is giving more policy emphasis to general tax reduction than to cutting the national debt. He deplored the fact that neither the President's economic report nor that of the joint committee came forth with a "concrete program for debt retirement."

In a supplemental view, Sen. Paul Douglas (D-Ill.) charged that Treasury Secy. Humphrey had failed in his responsibility to cut the budget and "has tried to pass the buck to Congress to cut it without specifying where it should be cut." Douglas recommended postponement of at least \$2-billion in military and civilian public works.

• **Republican Views**—Two Republican committee members, Rep. Tom Curtis of Missouri and Rep. Clarence Kilburn of New York, issued a joint supplemental view in which they objected to what they termed an overtone in the committee report that implied that the federal government can plan and direct the economy. "We are convinced," they said, "that the best the federal government can do today is preserve the climate under which our private enterprise system can thrive."

The only real dissent came from Sen. Barry Goldwater (R-Ariz.) who contended that the free enterprise system rather than the Employment Act should get credit for "the economic situation we have today." Goldwater concluded that one of the best ways to carry out Pres. Eisenhower's request to management and labor to avert a price-wage spiral would be to discourage efforts for extension of the minimum wage to retail and wholesale workers.

Money Study Gets Sidetracked

Pres. Eisenhower's plan for a commission to assess financial institutions has bogged down in Congress, where nobody seems to agree how it should be done.

When Pres. Eisenhower, in his State of the Union message, asked for a monetary commission to study the adequacy of the nation's financial institutions, Congressional approval seemed inevitable.

Then came a resolution by Rep. Wright Patman, Texas Democrat who has made a career in Congress of fighting "big money interests" and "Wall Street." He proposed a similar study by Congress, and it looked as if both requests might be granted.

• **Clouds**—Now, almost two months later, there is doubt whether Congress will approve either. At any rate, it is almost certain that neither will go through in its original form.

The snag can be traced both to politics and to pride. Patman and his supporters among the Democrats don't want to give the President a commission of private citizens because they say he will name "big bankers" who will exonerate Administration policy. Then, too, Congress—jealous of its prerogatives—wants to keep its hand in on any study that might provide some political mileage.

• **Shift**—The President first asked for a nine-man commission to be composed entirely of private citizens he would name. This aroused so much opposition among congressmen that the resolution originally proposed by Republicans was changed to include two representatives from each branch of Congress. But it's evident that it is still weighted too much on the side of the executive branch to suit the lawmakers.

Meanwhile, the Patman resolution has languished for two months in the Rules Committee, which decides what measures will be considered by the House. Three hearings have been held, but they have been two and three weeks apart.

• **Foes**—The reason for stringing them out apparently is to provide time to work out a compromise suitable to both Congress and the President. Even with the backing of House Speaker Sam Rayburn, Patman is probably bound to lose if the Republicans make it a partisan issue. And there is every indication that they will. On the thesis that it's the President's proposal against a Democratic proposal, they plan to go down the line against Patman, if his resolution reaches the floor. To their number, you would have to add a smattering of conservative Democrats.

Rep. Howard Smith (D-Va.), chairman of the Rules Committee, led a successful fight two years ago to block a study of the Federal Reserve Open Market Committee by Patman. Chances are that Smith would join the opposition again, although he refuses to commit himself. However, he has made it known that he would favor a bipartisan study, undertaken jointly by the Senate, House, and the executive branch, with each equally represented.

• **And Friend**—Patman himself takes a more optimistic view of his chances. He feels that grass-roots pressure on GOP members, stemming from tight money, will induce several of them to vote with him. He is counting on Rayburn's support to hold down Democratic defections. But he is resigned to opposition from Rules Chmn. Smith on the floor.

There is room for two studies, Patman thinks. His group could make a short-run study and report back to the House before the end of the session. The other group—an outside commission that could be appointed by the President without Congressional blessing—could look to the long term. The Administration's present proposal Patman describes as a "smoke screen designed to take the heat off the tight money and high interest situation."

• **Upper House**—The Senate, too, is concerned over the tight money market. The Democratic leader, Lyndon Johnson, is known to be considering a Senate study similar to that proposed by Patman. Many Democrats in the Senate consider "tight money" one of their best domestic issues.

Prospects now are that the House will refuse Patman again and that Congress will get around in its own good time to approving a compromise—in all probability a Hoover Commission-type study group, with representatives from both branches of Congress and bankers and businessmen to be named by the President.

But Patman may have the last word. If he is turned down by his House colleagues, he has two alternatives: He can launch out into a monetary study in either the Joint Economic Committee or the House Small Business Committee. He is already chairman of both committees. And those who have seen Patman in operation are convinced that he could create uproar enough to put a real curl in Wall Street's hair.



1 "Say... what are all these out-of-state orders? Our men don't cover those territories regularly, do they?"



2 "It's the result of the *call-collect* idea that the boss worked out recently with the telephone company."



3 "Think I've heard of that. We invite customers to call us collect on orders, deliveries, complaints, and so on."



4 "Right! They like it. And we like it, too. Builds a lot of good will, and it certainly pays off for us!"

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Minneapolis to Des Moines	85¢	25¢
Milwaukee to Detroit	90¢	25¢
Pittsburgh to Chicago	\$1.15	30¢
Los Angeles to El Paso, Tex.	\$1.50	40¢

Add 10% Federal Excise Tax

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In Business

. . .

"For Sale" Tacked Up at Last On General Aniline; Foes Fight on

This week, Atty. Gen. Herbert Brownell hung an official "for sale" sign on the huge General Aniline & Film Corp. (BW-Dec.1'56,p156). Sealed bids are to be opened Apr. 23; the high bidder will take all—75% of the dyestuff and chemical maker's common A and common B stock.

The government is convinced that under the Trading With the Enemy Act it is free to dispose of GAF, despite legal moves still being pressed to block the sale. GAF was seized in 1942; since then its net worth has increased to \$110-million from \$35-million.

Since 1948, Interhandel Corp., a Swiss holding company has been fighting to regain control, denying that it was merely a cloak for the German I. G. Farben interests. Interhandel's suit was dismissed by the federal courts when it failed to produce a mass of Swiss documents. Now it is seeking an injunction to block the sale from Federal Judge David M. Pine. But the Justice Dept., which has won every major GAF legal battle so far, is confident that the sale will go through with no more than slight delays.

. . .

Capital Expansion, Working Capital Got Major Share of Record 1956 Issues

U.S. corporations last year offered a record \$11-billion in new securities—up to \$800-million over 1955—the Securities & Exchange Commission reported this week.

Biggest gain of all was in the share of proceeds devoted to capital expansion and working capital; this \$9.6-billion contribution to the mushrooming economy topped the previous year by \$1.7-billion.

Another \$1-billion went to repay bank loans and to buy securities and other assets in effecting mergers. Only \$400-million was used to retire outstanding securities, compared with \$1.2-billion in 1955.

Manufacturing companies led the list of offerings with \$3.7-billion.

. . .

IBM Plans 2-for-1 Stock Split, Paving Way for \$200-Million Issue

International Business Machines this week announced plans to offer about \$200-million in new stock to its shareholders. At the same time, the board greased the ways for the sale by proposing a 2-for-1 stock split. Stockholders will vote on both projects at the annual meeting, April 30.

Wall Street had been expecting an IBM split for some time, the betting was that it would be in the range of 10-for-1 to 25-for-1. On the day the more limited

split was announced, the stock fell to \$520 at the close, from an earlier \$535. The company offered no explanation for leaving the stock in the relatively high \$260 area, even after the split. Many feel that this could discourage wide investment.

A. M. Byers Co. has set May 7 for a stockholders vote on a proposed 3-for-1 stock split. Each existing share of no-par common would be split into three of \$3 par. Byers recapitalization plan also includes creation of a new class of preferred stock and a higher ceiling on authorized indebtedness.

. . .

Dissidents at Penn-Texas, Fairbanks, Morse Cross-Pollinate Control Battles

The dissidents' fight for control of Penn-Texas Corp. has grown hotter (BW-Feb.16'57,p42). At midweek, the stockholders' committee headed by Alfons Landa, Washington attorney and chairman of the finance committee of Fruehauf Trailer Co., announced it would wage a "vigorous" proxy battle for control of the industrial polyglot headed by Leopold D. Silberstein. It's probable that the dissident slate for the board, due soon, will include Landa and Robert H. Morse, Jr., president of Fairbanks, Morse & Co., Silberstein seeks control of this Chicago maker of heavy equipment. Morse says he personally has contributed \$80,000 to Landa's committee.

This committee has brought two suits against Silberstein and his associates. One filed this week charges that they made more than \$1.8-million at the expense of the company in the acquisition by Penn-Texas of 130,000 shares of Fairbanks stock by financier Jacques Sarlie at prices above the market. The other suit says the company lost at least \$1-million in a sale-leaseback deal involving Liberty Aircraft Products Corp., a P-T subsidiary (BW-Feb. 23'57,p128).

Meanwhile, Silberstein claims to own 46.2% of Fairbanks stock and has announced his slate of seven directors. The Fairbanks management this week mailed its own proxy solicitations.

A stockholder committee claiming to control 25% of common and preferred stock has opened a battle for control of Metal & Thermit Corp. The group now has six of the 12 M&T directors, and seeks to add four more.

In more peaceful areas of corporate affairs, a merger has been approved by directors of Harris-Seybold Co. and Intertype Corp., both major makers of printing equipment. Stockholders of both companies will vote this spring on the deal, which is on a basis of five shares of Harris-Seybold for six of Intertype. . . . Stockholders will vote Mar. 29 on the proposed merger of Whirlpool-Seeger Corp. and Birtman Electric Co.

Physical expansions: The Federal Power Commission has been asked to certify \$61.5-million in new facilities for Transcontinental Gas Pipe Line Corp. . . . Carter Oil Co., a Jersey Standard subsidiary, plans \$56-million capital spending this year. . . . Armco Steel Corp. will spend \$50-million to expand its plants at Ashland, Ky., and Houston.

An age is born

More than 24,000,000 U. S. babies have been born in the past six years — born into a whole new age of science and technology. They will see our standard of living doubled before they are middle-aged.

They'll cut their eyeteeth on satellites, and take for granted the conquest of new frontiers, with atomic power under the hood and outer space their destination.

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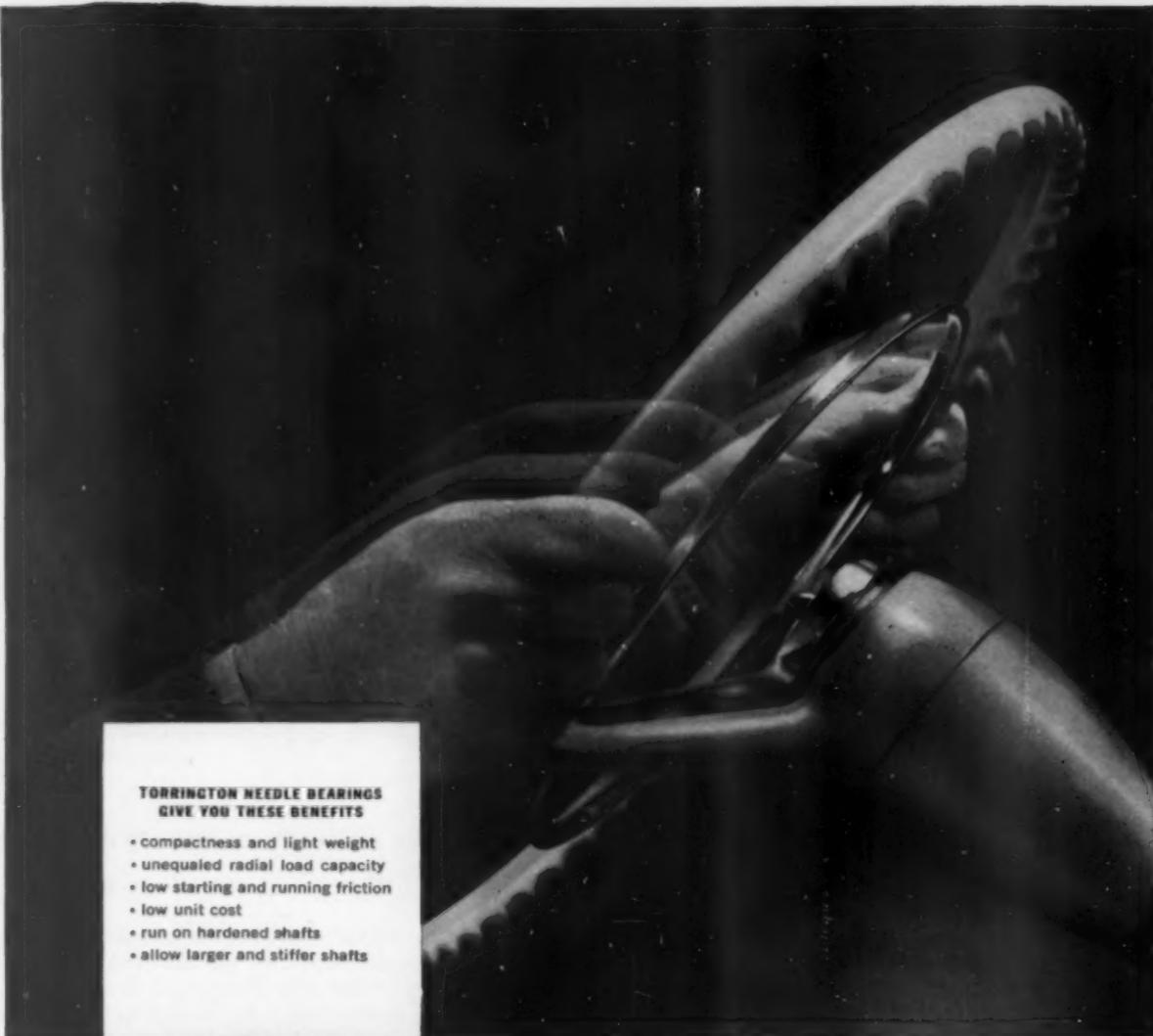
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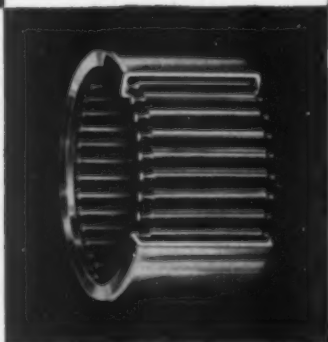
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WASHINGTON OUTLOOK

WASHINGTON
BUREAU
MAR. 2, 1957



A shift in the corporate tax burden—a tax cut for smaller companies to be offset by higher taxes on the bigger ones—is gaining support in Congress. It's too early to tell definitely what will come of the idea. But the move, largely from the Democratic side, is being taken seriously. In fact, backers of the Administration's bill to postpone the scheduled Apr. 1 cuts in the corporate income tax and in certain excises are reconsidering their earlier plans to rush through this extension legislation.

The highlights of the plan: Cut the corporate normal tax, which applies to all profits, from the present 30% rate to 22%. Then, raise the surtax, which applies to profits in excess of \$25,000, from the present level of 22% to 31%. What this amounts to is a reversal of the present normal and surtax rates, with an extra percentage point added at the surtax level. The new combined normal and surtax rate would be 53% instead of 52%.

It's the Fulbright scheme. Sen. Fulbright, (D-Ark.) proposed it as an aid to small business. Fulbright has now lined up 35 co-sponsors—26 Democrats and nine Republicans. That's a big bloc in the Senate and he is counting on still more support from others.

Here's how the shift would work in terms of tax burden:

Companies with profits under \$225,000 would pay lower taxes than now. The maximum relief would come at \$25,000 of income. At this level, the tax now is \$7,500. The plan would cut it to \$5,500—save \$2,000.

Companies with profits over \$225,000 would pay more than under present law. At the \$500,000 level, the increase would be \$2,750. At \$100-million, the extra would be \$997,750.

Here's how it works on the revenue side:

The switch in normal and surtax rates, without the extra one percentage point at the surtax level, would cost the Treasury upwards of \$400-million. That was the original Fulbright proposal, but it met opposition because of the revenue loss at a time when the budget balance is so slim.

The 31% surtax more than wipes out this estimated revenue loss. Fact is, experts figure it might add some \$20-million net to receipts.

Fulbright's strategy is to offer the scheme as an amendment to the corporate income and excise tax extension bill when it comes to the Senate from the House. The maneuver can't be tried in the House, since the bill will be acted on there under a gag rule, barring amendments.

The result will be a delay on the extension bill. It will be held back in the House until late in March, in the hope that the Senate might reject the Fulbright bill rather than run the risk of a delay beyond the Apr. 1 deadline, when the corporate income rate is slated to drop to 47%, from 52%. But the Fulbright camp figures it has the answer to this.

A split up of the bill will be proposed. Fulbright would be willing to go ahead and vote the excise rate extension as a separate bill. This would avoid the confusion that would result if rates went down Apr. 1 and then were raised back up a short while later. The corporate extension would then be handled as a separate bill. And the time of enactment would not

WASHINGTON OUTLOOK (Continued)

WASHINGTON
BUREAU
MAR. 2, 1957

be important, since this measure could apply retroactively. As noted above, it is too early to tell what will happen. But the move is gathering steam.

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Upwards of \$750-million more in military pay is involved in new Pentagon plans slated to go to Congress shortly.

Aim is to hold skilled technicians in the service—aircraft repair men, electronics experts, etc. Under existing pay scales, the services are finding it extremely difficult to persuade men they have trained in these fields to reenlist. The technicians can go into private employment at much higher wages and the Pentagon's answer is to offer a competitive pay system.

Congress may balk at this time. Such an increase in manpower costs would thin down the Treasury's estimated budget surplus.

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Many new names and faces are showing up in the Administration. They are mostly in what's called the second echelon—Assistant Secretaries—important in making policy as well as administering it. Pentagon changes have been the most conspicuous.

—•—

Murray Snyder, 45, Assistant Press Secretary to the President, will take over as Asst. Secy. of Defense for Public Affairs, replacing Robert T. Ross, who resigned under pressure from Congress. This will put a professional news man at the head of military public relations.

Mansfield Sprague, 45-year-old Connecticut lawyer and GOP leader, is the new Asst. Secy. for International Security Affairs.

Perkins McGuire, 53, former textile and department store executive, now is in charge of supply and logistics.

Frank D. Newbury, 77, a retired Westinghouse vice-president, takes over the new spot of Asst. Secy. for Research & Engineering. This heads up the merged fields of research and development and applications engineering. The merger had Hoover Commission backing.

Dewey Short, 58, defeated GOP congressman from Missouri, has been picked for the post of Asst. Secy. of the Army for Civil-Military Affairs.

—•—

As for Defense Secy. Wilson's own plans, associates speculate that he will stay on until summer—after Congress has acted on the new military budget—and then retire. Names now most mentioned as Wilson's successor are Gen. Alfred Gruenther and U.N. Ambassador Henry Cabot Lodge.

The Dept. of Health, Education and Welfare, under Secy. Folsom, gets three new top men, all rated as "modern Republicans."

John A. Perkins, 42, president of Delaware University, is the new Under Secy. for HEW.

Elliot Richardson, 36, Boston lawyer, is the Asst. Secy. in charge of drafting HEW's legislative programs. At one time he was a clerk in the office of Supreme Court Justice Frankfurter.

Edward Foss Wilson, 52, of the Wilson meat packing family, takes over the post of Asst. Secy. in charge of the 12 regional offices.



Stevan Dohanos

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Photo courtesy Hodgman Rubber Company, Framingham, Mass., and Long Island Lighting Co., Mineola, L. I.

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AUTOS: "The changes made by General Motors in its policies . . . will serve as a guidepost to a new era in factory-dealer relations throughout the industry."

Harlow H. Curtice, GM president

OIL: "Our dealer relation problem should be solved by free, frank, and friendly discussion—not by appeals to government."

J. A. Miller, marketing manager, Esso Standard Oil Co.

APPLIANCES: "Dealers represent the very lifeblood of our existence, and it would be foolhardy for us to march contrary to their best interests."

C. W. Theleen, manager for customer relations, General Electric Appliance & TV Div.

Taking Dealers off the Hot Spot

Events of the past year have driven a lot of manufacturers, including auto, oil, and appliance companies, into dealers' arms. The question is: How long will the harmony continue?

SUCH EXPRESSIONS of solicitude as those quoted above from three important companies in key consumer industries represent more than the ordinary concern that manufacturers display toward their dealer organizations.

Because of the distribution problems that prompted them, they amount to open recognition, by the producers, of a change in supplier-dealer relationships that has been building up for at least the past year.

Behind that change lies a series of events that has already:

- Raised dealer relations—always a problem—to the top levels of management policymaking in some industries.
- Given the whole study of distribution and its direction and control an urgency that it hasn't had for years.
- Brought manufacturer and dealer practices into the political spotlight again, with the 85th Congress almost certain to make distribution a prime subject for investigation—if not for more legislation.

I. Dealers' Revolt?

It is too early and probably too dramatic to say that what has happened is the direct result of a successful revolt

of dealers. But events of the past few months suggest that dealers' voices—at least in autos, appliances, and oil—are being listened to with much more respect nowadays.

• **Auto Industry**—In autos, there was last year's successful dealer push for passage of the O'Mahoney bill, which put a federal law over relations between dealers and manufacturers. This push was a major reason for the auto industry's first basic change in its franchise system in many years (BW—Mar. 3 '56, p104).

This year, for the first time in history, presidents of the four top auto companies found it politic to address the National Automobile Dealers Assn. meeting in San Francisco, where the dealers won renewed expressions of the manufacturers' concern about their welfare (BW—Feb. 2 '57, p25).

GM's Harlow Curtice told them: "Our new distribution policies . . . all were to the benefit of the dealer and, we believe, to the ultimate benefit of the retail customer."

• **Still Under Pressure**—Even with the factory-dealer rapprochement, pressures are still being brought to bear on auto companies. General Motors' vice-president for distribution, William F.

Hufstader, recently hurried to Little Rock, Ark., to object to a proposal before the legislature to license dealers and regulate relations with factories.

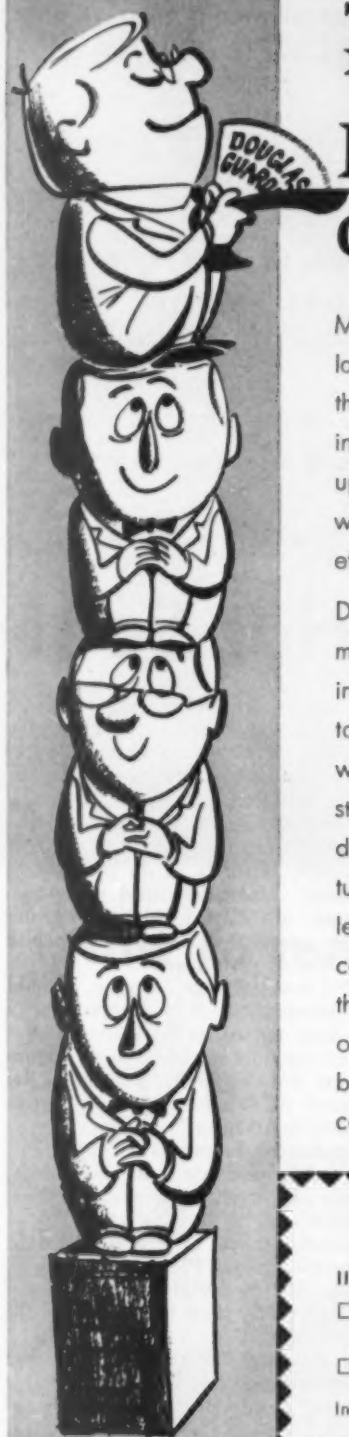
The bill would establish a commission of franchised dealers with the power to license other dealers as well as to license factories to do business in Arkansas. Hufstader called it a prime example of "class legislation," giving dealers practically a lifetime franchise regardless of performance.

"No manufacturer," he said, "would risk termination or nonrenewal of a franchise, no matter how inimical the dealer's conduct might be to the manufacturer and the public, if he faced the prospect of the loss of right to do business in Arkansas."

• **Appliance Industry**—In appliances, too, dealers have won some concessions, though not nearly so sweeping as those in autos.

Earlier this year at least three manufacturers—General Electric, Whirlpool-Seegeer, and Westinghouse—announced plans that alter their builder sales policies.

Builder sales are those made either directly by the factory or through distributors and dealers to residential construction projects. Dealers raised a din of complaints that factories were selling appliances to builders at prices that the dealers claim were often below wholesale factory prices. Dealers said these appliances (1) were being sold at stiff discounts in quantities as little



TOP LEVEL DECISION:

Let's borrow on inventory

More and more executives of both large and small concerns are realizing the financial logic of putting inventory to work. The cash tied up in inventory strips the business of working capital and hampers efficient operation and growth.

Douglas-Guardian's "Traveling Credit" makes it possible to borrow on inventory and return these dollars to working capital. We issue warehouse receipts on merchandise stored at your plant or in distributors' locations. These receipts, turned over to your bank or lending agency, become sound collateral for a loan. Borrow thousands or hundreds of thousands on a rotating basis as your business follows its course. Mail the coupon for more details.

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City _____ State _____

BW-3-2-7

"... we strongly feel that the general industry practices in builder sales have been inherently wrong'..."

STORY starts on p. 43

as one appliance to a builder and (2) were finding their way in large numbers into retail distribution channels.

Under the newly announced policies—timed to coincide with the annual convention of the National Appliance & Radio-TV Dealers Assn. meeting in January—the manufacturers will limit builder sales to bona fide construction projects and only specified minimum quantities (in the case of GE, 50 of any one appliance or 100 of assorted appliances) will be eligible for special discounts.

• **Builder Sales**—The Westinghouse statement said: "We feel strongly that the general industry practices in builder sales have been inherently wrong. In some cases the distributor, with the factory's concurrence, has bypassed the dealer completely."

At the NARDA convention in Chicago, where manufacturer-dealer conferences were tried out for the first time, C. W. Theelen, GE's manager of customer relations for major appliances, explained in detail the company's policy on builder sales, but not without commenting that: "Historically, then, we can say that appliance dealers have neither been willing, anxious, nor able to take any great part of the responsibility of helping the manufacturer introduce new and revolutionary items—that, on the other hand, the builder has been..."

• **Factory Service**—The spread of centralized factory servicing of TV sets and appliances, in which the company takes on most of the responsibility for providing service, has also come under fire from appliance dealers. Carried to an extreme, they see it as another threat to their reason for existence.

As a direct result of complaints, GE late last year altered or canceled a series of consumer ads in Life and the Saturday Evening Post which some dealers and independent servicemen had interpreted as a slap at them.

In recent weeks, RCA, GE, and Philco have all attempted to placate dealers' fears that the servicing function will become nationally centralized to such a degree that it might eliminate one of the reasons why customers should presumably prefer authorized dealers rather than discount houses.

Philco says its centralized factory servicing is being confined to 16 metropolitan centers, to care for the appliances that are sold outside regular dealer channels. GE says its new factory serv-

"Carved"

wings

for unitized aircraft construction

—from
**Reynolds Aluminum
rolled plate**

New uses and applications can make an old idea as new as tomorrow. Here's an aircraft wing hollowed out in the way our ancestors hollowed a tree to make a boat.

The wing-half shown here was made from a single aluminum plate. This wing has been sculptured—shaped in one piece so that conventional spars and stringers and rivets are eliminated. Huge machines have chewed out the excess weight—yet have left a pattern which retains tremendous strength. The result is a perfectly smooth, rivetless outer surface—completely unitized inner construction.

This is another example of the way aluminum becomes an important part of the answer to hundreds of problems each year—it may suggest aluminum possibilities to you. For information or assistance on making your products better with aluminum call the Reynolds branch office near you, or write Reynolds Metals Company, P.O. Box 1800-GA, Louisville 1, Kentucky.

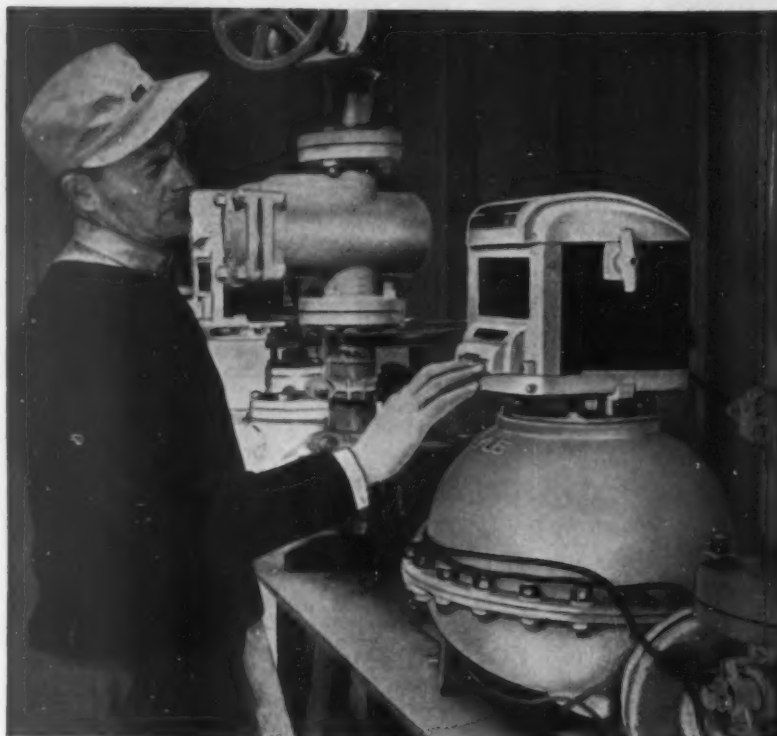
See "CIRCUS BOY", Reynolds exciting dramatic series,
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Made with Aluminum

are made with

REYNOLDS  ALUMINUM

Another way
**REYNOLDS
ALUMINUM**
helps cut costs,
improve products



PUNCHING *Strength* INTO CONCRETE



Up in the tower of a big central-mix concrete plant at George M. Brewster Co., this man's one-fingered punch fixes the exact amount of water measured into a batch for the giant 5-yard ready-mix truck being loaded below. Control of water is the one most important problem in making strong concrete. Two-thirds of the country's concrete manufacturers solve this problem with water meters . . . and most of these meters are Neptune Auto-Stops. Just push buttons to set the quantity desired. The meter shuts off automatically.

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for a better measure of profit

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Superior Meter Co. gas meters
Cox & Stevens electronic scales
Electronic Signal Co., Inc. toll collection equipment

"... the improvement may also be a result of an economic tide in the dealers' favor . . ."

STORY starts on p. 43

ice branches in Columbus, Toledo, and Fort Wayne are designed chiefly for testing and sales purposes—and are not to be construed as a pattern for the company as a whole.

• **Oil Industry**—Oil companies have also been feeling the pressure of dealer unrest. They have become involved in complaints by dealers as a result of scattered price wars. Some of them face Federal Trade Commission charges of price discrimination, through special allowances to some dealers and not to others (BW—Oct. 6 '56, p. 146).

Before the Suez crisis grabbed the headlines, National Petroleum News, a McGraw-Hill publication, called dealer relations the touchiest subject in oil marketing today, with 1957 almost sure to be the year "for the greatest strides ever made in relations between suppliers and their dealers."

This renewed interest in dealer relations has many of the major oil companies reviewing their basic policies on dealers. It was one reason why Esso Standard last fall reissued a statement of policy assuring dealers that "the Esso dealer customer is free to run his business as he sees fit."

II. Just a Truth?

Naturally, you still find dealers who complain of certain manufacturer practices and express fear that the promises at the policy level won't be carried out at the operating level.

For the most part, though, dealers say they are experiencing better relations with manufacturers than have existed for some time.

Partly this may be a result of their kicking up their heels. You can't overlook the fact, for instance, that the Senate Small Business Committee acknowledges it is planning investigations of both oil and appliance distribution policies on the strength of complaints that it says it has received from dealers and independent distributors.

But the improvement may also be a result of an economic tide in the dealers' favor.

• **Brand Battles**—All three industries in question—autos, appliances, and oil—have gone through a competitive battle among manufacturers that has left scars still unhealed.

For months, it was the dealers who bore the brunt of the battle as each manufacturer sought to get a bigger share of the market. In the overpro-



Command performance for safety—the Studebaker Golden Hawk puts you in command with a built-in supercharger for extra power the instant you need it . . . puts you in command with Twin Traction for driving power in both rear wheels... and puts you in command with the most effective brakes. Put yourself in command of a Golden Hawk at your dealer's, today!



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Where pride of Workmanship comes first!



For the small office, the low-cost DM, a desk model postage meter!



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Now every office can have one!

- Even if you average \$1 a day or less for postage—you can have a DM, desk-model postage meter.
- The DM prints postage—any amount, for any kind of mail, directly on the envelope. With a dated postmark that helps speed your mail through the postoffice. Prints a small ad, too, if you like. Even handles parcel post.
- There's a moistener for sealing envelopes. A whole day's mail can be stamped and sealed in a few minutes. Anybody can use a postage meter, save mailing time—and postage.
- The postage meter is set by the postoffice for any amount of postage you need. Your postage in a meter is protected from damage, loss, misuse, and is automatically accounted for.
- There's a postage meter model for every office, large or small. Ask the nearest Pitney-Bowes office to show you. Or send coupon for free illustrated booklet.

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"... 'all of this makes the manufacturer... more important, while you and I become less important'..."

STORY starts on p. 43

duction that resulted from the market rice, goods slopped over into retail outlets that compete with regular dealers—such outlets as bootleg auto lots, appliance discount houses, and off-brand oil price-cutters.

In the end, though, manufacturers began feeling the effects of this overloading of the distribution channels:

- In appliances, as a dealer spokesman says, "The manufacturers have just got tired—they lost a lot of blood."

- In autos, not only did the makers have to cut production—which hurt their profits last year—but they also saw a major threat to the franchise system that gives them unique control over production scheduling.

- Oil companies, caught between dealer grips over price wars and anti-trust interpretations that tend to tie their hands in solving them, became concerned that their marketing setups would have to be changed.

- **Not Over Yet**—It is still open to question, though, whether dealers in these industries have achieved a permanent change in manufacturers' attitudes on distribution problems or whether present good relations are simply a truce in a long-term battle.

One appliance dealer, for instance, thinks the distribution pattern in his industry will continue to change. George Johnston, a Minneapolis dealer, told his colleagues that dealers will have to live with these shifts:

- The creation of a stable, year-round appliance market that deemphasizes the need for creative selling.

- Customer reliance on "big brand names."

- A relative decline in the need for servicing because appliances will be more "trouble-free."

- The fact that more and more people buy credit, rather than the services of any particular dealer.

All of this, says Johnston, makes "the manufacturer... more important, while you and I have become less important..."

Automobile distribution is calm today compared with a year ago, but it still has quirks that worry the industry. GM's Curtice told NADA he believes bootlegging this year will increase, rather than decrease. This means that supermarket dealers—who sell more than one brand of new cars and get them through leakages in the regular franchise system—are still a threat to regular dealers in some areas. **END**

In Marketing

• • •

Big Four Ad Agencies Hold Leads, Thanks to Lusty Gains

The top advertising agencies last year registered new gains and stayed ahead of the pack. According to the annual roundup published by Advertising Age this week, the 34 biggest agencies in the U.S. and Canada—those with billings of \$25-million and up—pushed their total billings to almost \$2.4-billion in 1956, from close to \$2.1-billion in 1955.

Three agencies had billings of more than \$200-million: J. Walter Thompson, with \$255-million; McCann-Erickson, with \$219-million, and Young & Rubicam, which just tipped the \$200-million mark. Close behind was Batten, Barton, Durstine & Osborn, with \$194.5-million.

Significantly, these four accounted for 46% of the total growth of the whole group of 34. All the top four except BBD&O reported big billings abroad. And the figures showed that since 1955 Young & Rubicam and McCann-Erickson had swapped places.

• • •

Legislature Makes Life Difficult For Trading Stamps in Tennessee

Despite the best efforts of Tennessee housewives (BW—Feb.16'57,p80), the state legislature has passed a bill that will make it extremely costly for trading stamp plans to operate in that state. It doubles the annual privilege tax—now \$300—on stamp companies and places a 2% gross receipts tax on merchants giving stamps. The Tennessee House approved the bill last week by a huge 87-5 majority after it had sailed through the Senate by a 28-2 vote.

Gov. Frank Clement has given no clue to his reaction. Sources close to him think he'll let the measure become law without his signature.

If he does, the stamp companies involved are sure to challenge the law's constitutionality in the courts.

A clue to what the fighting is about: Premium Practice, a trade publication, estimated last week that trading stamp companies sold about \$350-million worth of stamps to retailers in 1956, a 75% increase over 1955, according to that magazine. It estimates that stamps were given with some \$16-billion worth of retail sales, against around \$10.6-million the year before.

• • •

Food Fair to Sell Nonfood Items In Unit Nestling Next to Market

Food Fair Stores will soon launch a new venture in nonfood selling. In the next week or so it will open up a unit, called Sav'Fair, to sell clothing, small appliances, drugs, and household wares. Sav'Fair will be right next to a new Food Fair supermarket in a shopping center

in Clearwater, Fla. It will share a mall with the food store, and will be its twin in size.

Trade observers view this experimental project as an effort by the big food chain to get nonfoods out of supermarkets while still covering the nonfood field. The much-talked-of deal with Alexander's Department Stores, based in New York City's borough of the Bronx (BW—Nov.10'56,p62), would have accomplished the same end if it had gone through. Some observers guess that the Sav'Fair unit may be Food Fair's way of showing how successful such a tie-in may be. The project suggests that the food chain may still hope to persuade other softgoods retailers to join it in some key locations.

Food Fair officials are saying little about the Clearwater experiment at the moment. The company is setting up a new division of Food Fair Stores—but not a separate subsidiary—to run the nonfood unit. If the Florida project works, Food Fair will try the same tactic in other locations.

Sav'Fair will serve another purpose: Besides selling nonfoods, it will also act as redemption center for the food company's stamp plan.

• • •

Supermarket, Mail Order House Team to Boost Sales of Both

Two big chains—Aldens (mail order and retail) and National Tea Co. (food)—have joined forces in another venture at "mixed retailing." Within the next two months, Aldens will set up catalog order desks in four National Tea stores in Michigan, Indiana, and Illinois.

The catalog department will be entirely under Aldens' management. The company will supply a clerk, cash register, fixtures, and some merchandise for on-the-spot sales. Such merchandise won't compete with anything National Tea sells, and it will be scaled to supermarket impulse buying.

Both companies look for increased traffic as a result. Aldens wants to make catalog purchases easily accessible in rural markets where there are no catalog stores. National Tea Pres. H. V. McNamara (who is also a director of Aldens) says: "We're just running another service for our customers."

Financial arrangements are still being worked out, but the setup will probably be similar to arrangements National already has with bakeries operating in its stores. National charges them a minimum rent, collects a percentage of sales.

• • •

Marketing Briefs

Gulf Oil Corp. joined the ranks of three-grade gasoline marketers this week (BW—May12'56,p51). It will offer new Gulf Crest plus No-Nox and Good Gulf.

Operation Earlybird, started by Ideal Toy Corp. in 1956, will be stepped up this year. Under the plan, the company offers discounts of up to 10% to distributors—and large retailers who buy direct—if they buy its products in the first three months of the year. This will help keep Ideal on a year-round production schedule. The economies that result permit the discounts.

COMPANIES



"PEOPLE like a nice clean place to park," says Luther Matthews, Allright operator in Memphis.

"YOU CAN'T take one plan and carry it over to another piece of property."

"THIS entrance is as close as we could get it to where the customer wants to go."



Parking Pays—the Allright Way

Streamlined techniques for getting a car off the streets (pictures) have helped build the Houston-based Allright Parking System into one of the nation's biggest.

One trademark of the U.S. city today is the motorist, frustrated for lack of a place to park, driving vicious circles around and around downtown blocks. The Allright Parking System has fattened into one of the nation's biggest by getting more of these hapless drivers off the streets—and into its parking lots and garages—than most of the competition.

Allright runs 464 parking facilities in 48 cities flung across the map of 17 U.S. states and one province of Canada. The Canadian location (Vancouver, B.C.) is an exception to the geographical rule—most of the system lies in Southern or Border states, or in the far Southwest. Typically, the latest additions were Brownsville, Tex., and Charlottesville, Va.

• **Fat Kitty**—It's prospered so well that gross revenues last year were slightly more than \$8-million (up from \$3-million in 1950 but not quite so good as 1955's \$8.3-million), and management is sure the take will be plump as long as the number of autos on U.S. streets

persists in increasing. As an industry, auto storage and parking has been increasing its take 22% faster than total retail trade since 1948. According to U.S. Dept. of Commerce statistics, 1954 receipts of the industry came to \$292-million, a 54% increase over the figures for six years earlier.

The Allright chain is widely dispersed in more than just geography—structurally, it consists of 29 corporations, 25 partnerships, and one proprietorship. Some of the facilities carry the name Parkrite, but gradually the Allright banner is appearing over all, to avoid confusion with a competitor (Park-Rite, Inc., of Texas).

• **Standings**—There's no doubt that Allright is big. But no one can say for sure where it stands in the parking business, because there isn't any handy guide to facts and figures such as comparative yearly revenues or number of installations. Among the giants, though, are the Kinney System, System Auto Parks, and Allright, as well as Walt's Auto Parks & Garage and National Garages.

I. Lots and Lots of Lots

The only common denominator in the Allright System is one man—Durell M. Carothers of Houston. In every one of the 55 Allright outfits, he is a

prominent figure: sometimes president, sometimes vice-president, sometimes partner. But he will seldom keep more than 33⅓% of any one deal for himself. He explains it this way:

"I'd rather own pieces of 40 companies that each earn \$25,000 than own a comparable piece of one company that makes \$1-million a year."

• **Advantages**—One big reason for this, of course, is taxes. All the separate companies are based on approximate net earning powers of \$25,000 a year each. The tax on \$25,000 earnings is 30%; above that point it climbs up to 52%.

Besides, with such a diverse structure, Carothers can juggle operations to best advantage. For instance, one highly profitable lot can carry two or three newer, less lucrative locations until they begin to flourish on their own. If a lot seems to be floundering, it can be taken over by one of the successful concerns until its plight is remedied.

And when a partnership or corporation grows up to be big enough, it can split, like an amoeba, into two or more independent outfits—always with Carothers as a beaming parent, of course.

For simplicity's sake, each operation is contained within the same state, and usually the same city.

• **Genesis**—In the beginning, the "system" was only three Houston parking

"OVER angle parking we can save possibly 30% of the space" with straight parking.



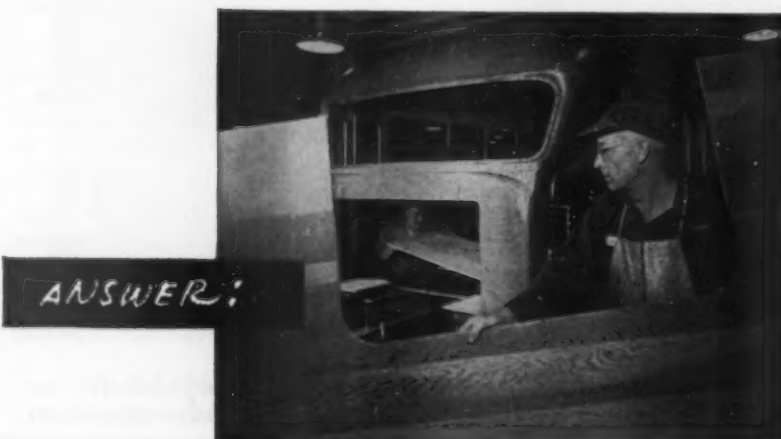
"BUT WE USE angle parking when the customer parks the car," without attendants.



THERE ARE PROBLEMS OUT OF SCHOOL, TOO!




Through fair weather and foul, the school buses of America must keep moving. The moisture and condensation caused by rapid temperature changes, especially in northern climates, quickly rot out untreated flooring in these buses. What's the answer?



Superior Coach Corporation, one of America's leading bus manufacturers, decided to investigate preservative protected plywood for flooring. After reviewing recommended treatments and testing preservatives, they selected Wolmanized pressure-treated plywood for the floors in their buses.


This company has found that Wolmanized® plywood is easily fabricated and takes glue well; finish flooring materials stay down. And what is also important, the Wolmanized plywood does not corrode the metal fasteners used to anchor seats and the flooring itself. Now, whatever the weather—hot or cold, wet or dry—this decay-resistant floor will last the life of the bus.

Wolmanized plywood or lumber is the answer for industries looking for a construction material that has to stand up under conditions of moisture, high humidity and condensation.



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The HOW and WHY of Wolmanized lumber and many suggestions for residential, commercial and institutional uses are covered in this handbook. Write for a copy.

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W-19

"... Allright Parking is no one-man empire ..."

PARKING starts on p. 50

lots, bequeathed by an uncle to Carothers, then a Rice University student. The first location had been opened to the motoring public in 1926.

Carothers had already been working part-time in the lots; when he became the owner, going to college became part-time. But he won a Rice degree in 1930 and went on to earn a law diploma by studying at night.

• **Dramatis Personae**—Allright Parking is no one-man empire, though. Carothers' two principal associates at present are Spencer Scott of Austin, a canny man with money who's responsible for much of the system's bookkeeping, and C. W. Ennis of Nashville, an engineering graduate of the University of Illinois with a lot of savvy about design.

There are other men, too, more remote from the central trio but still concentric to them. These are the various operators sharing in ownership of their branches under an Allright policy that can make it possible to become a capitalist in a hurry—even without capital of your own to start.

• **Success Story**—Luther F. Matthews is a shining example. Back in 1935, he began his Allright career parking cars for Carothers in Houston. In a year he worked up to manager of all Carothers' lots there, then put on Army khakis in wartime. At that point, the whole chain could boast only 50 locations and a \$500,000 gross.

With Matthews in civilian clothes again in 1946, Carothers dispatched him to survey half a dozen Southern cities that might show the traditional hospitality to Allright. The tour ended in Memphis—which, at that time, didn't have a single paved commercial lot. Matthews quit his Houston job and agreed to run Allright's Memphis debut—at half the salary, but with a share of profits. Carothers told him, in effect: "You do the work and we'll put up the money." So Carothers contributed one-third himself, another one-third on Matthews' behalf; Ennis, the rest.

For a while, it looked as if the story's ending might not be happy. Matthews was ready to surrender at least once. But Memphis now has 24 profitable, smoothly paved Allright lots, four garages. The latest two lots just began operating at Methodist Hospital, which had a serious parking problem until Matthews convinced them he could run the facilities more efficiently and won a lease.

In recent years, Matthews has expanded beyond Memphis, into Chattanooga, Little Rock, and Wichita—where, following the pattern, he shares



Project: Growth

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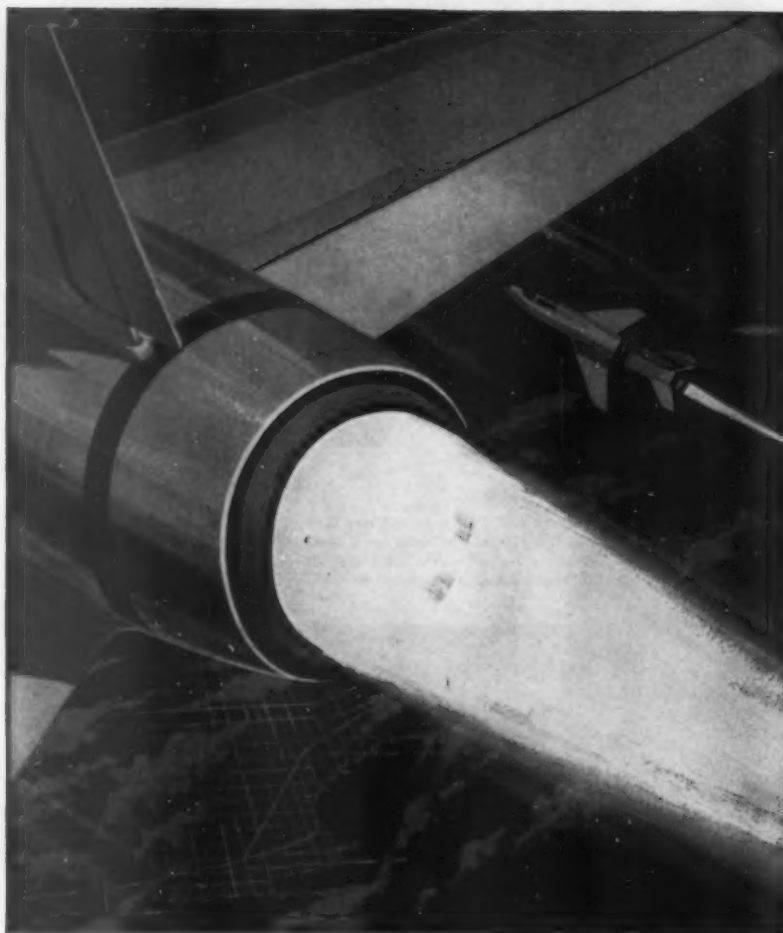
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New SPS 1200°F locknut secures jet hot spots



Critical components, operating under high temperatures in jet engines—in manifolds, afterburners and similar hot spots—cannot be kept fastened with ordinary locknuts. In high temperatures, such nuts soften, lose their tensile strength and fail. They also seize after cooling. Often removal of the nuts can then be so difficult that the parts they hold together are damaged in the process.

The new SPS 119 FW high-temperature locknut was designed to end these problems. Made of corrosion and heat-resistant alloy, and silver plated, it keeps its tensile strength in temperatures up to 1200°F. It withstands hundreds of cycles of heating and cooling without galling or seizing on mating threads.

The 119 FW locknut is another product of the constant SPS research into ways of making threaded fasteners that are stronger, safer, lighter, easier to use. Call on us for assistance with your threaded fastener problems. STANDARE PRESSED STEEL CO., Jenkintown 57, Pa.

STANDARD PRESSED STEEL CO.

AIRCRAFT PRODUCTS DIVISION

SPS

JENKINTOWN PENNSYLVANIA

control with Carothers and others.

- **Inducements**—The Matthews story is a powerful argument for a parking operator to be part of the Allright system. But Carothers can muster others:

- For \$20 per lot per month, two central offices (in Houston and Austin) do all the accounting and bookkeeping.

- From the headquarters office come valuable reports and advice.

- The Allright name lends an air of integrity and efficiency.

II. How to Park a Car

Last year, Allright ventured into Little Rock for the first time; now it has six lots there. The first deal was for a graveled plot, a block from the city's main street. It had been used for parking for years. But with Allright refinements, it now handles every day two to three times more cars than before.

The new management made it Little Rock's first paved commercial lot, relocated sidewalks and entrances, installed islands with metal awnings to shelter waiting customers and—most important—a time clock. Instead of a flat 50¢ rate no matter how long you parked, Allright now charges 15¢ for half an hour, 25¢ an hour, 55¢ all day.

Interestingly, at least four competing Little Rock lots have been paved since the chain introduced this innovation. "It proves that people like a nice, clean place to park their car," says Matthews.

- **Scientific Method**—The Allright system has a method for success, and in Little Rock it was applying lessons learned over the years. To begin with, there's nothing casual about a decision to set up shop in a new city. Carothers looks first to the competition. "Where a town seems already highly organized, or where there is already a 'favorite son' established . . . we wouldn't waste much time," he says.

His preference is for cities of 50,000 to 300,000 population; cities bigger than that, he feels, are more static, less likely to offer promising locations in downtown districts—in which, incidentally, he has a vigorous faith. Unlike many businessmen, he shuns the suburbs—because free parking areas surround outlying shopping centers anyway. What's more, his facilities flourish in the downtown traffic density.

Carothers and colleagues study a city's prospects for themselves with sometimes as many as 10 visits. They don't waste time counting cars that pass a proposed operation—such statistics would be meaningless without knowing the drivers' destinations and economic status. Instead, with a sociological eye on street patterns and residential districts, they figure out where people who can afford a parking lot or garage would want to park. Potential customers, Matthews thinks, come from income

Short cuts with Recordak Microfilming

Latest reports on how this low-cost photographic process is simplifying routines for more than 100 different types of business . . . thousands of concerns



KEEPS TRACK OF MILLIONS DAILY

NEW YORK, N. Y.

The operations of hundreds of clerks in Merrill Lynch, Pierce, Fenner and Beane's 116 offices are backed up by Recordak Microfilming in the Home Office cashier's department.

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Thus, should a "common" stock certificate ever be charged out as "preferred," the error can be spotted in a Recordak Film Reader in minutes—saving days or weeks of tracing, and sparing customers considerable inconvenience.



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Lilac Laundry and Dry Cleaning saves more than \$5,000 per year by microfilming the tickets made out each day by its 16 drivers and clerks in 5 stores.

These pictures replace a ledger record—with a 5-part written description of each ticket—that took all day to compile. Takes about 15 minutes now to make a photographically accurate record of all tickets in route and store sequence.

Lilac also did away with carbon copies by microfilming its charge account statements. Saves on accounts receivable insurance, too.



URNS MILKMAN'S RECORDS INTO BILLS

McKEESPORT, PA.

The Menzie Dairy cuts billing costs in half by microfilming its drivers' route sheets and sending them out to customers as their monthly bills.

This eliminates days of tedious billing and the need for costly posting machines and files. And it gives the customer the actual record which the milkman compiled from day to day, all but ending questions about charges.

The Menzie Dairy uses a Recordak Reliant Microfilmer (illus. below) which takes pictures of 40 route sheets for one cent . . . and has a unique high-speed automatic feeder that prevents "double feeding."

Note: Recordak has a complete line of microfilmers to match all needs—priced as low as \$550. Low rental plan, too.

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WHAT MAKES CHESSIE'S



RAILROAD GROW?

One of a series telling what Chesapeake and Ohio is doing to make this a bigger, better railroad.



Nearly half of America's overseas export coal goes through the C&O port of Newport News, Virginia. An \$8 million bulk cargo pier capable of handling more than 8 million tons of import ore a year will begin operation this Spring.

CHESSIELAND

One of the reasons Chessie's railroad is growing so fast is that it serves a fast-growing industrial empire. Its eastern terminus is on Hampton Roads, Virginia, the country's second busiest harbor. From there it reaches west to Chicago, and to Ludington, Mich. where its Trainferries form a time-saving short cut between the Northwest and the East.

Halfway between, it passes through the world's richest coal bin, now producing at top speed to meet ever-increasing demand, from abroad as well as at home. *Mines on the C&O have had a full coal car supply to move this vast tonnage to market.*

It serves the booming chemical and metallurgical districts of the Kanawha and Ohio River valleys, the varied industries of Ohio and Indiana; the automotive region radiating from Detroit; and fast-growing Southern Ontario.

C&O's expansion program is continuing. Of major importance to its shipping customers this year are 9000 new freight cars to cost \$70 million. Chessie's railroad is growing and going to meet the ever-increasing service needs of its territory.

Would you like the new brochure describing industrial resources and opportunities in C&O territory? Address:

Chesapeake and Ohio Railway

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A wider margin of profit

To give motorists a wider margin of safety, the Federal Highway Program calls for thousands of miles of highway widening. Road builders can count on a wider margin of profit if they use a Gar Wood-Buckeye Hi-Way Widener to handle this work. Here's why:

The Gar Wood-Buckeye Hi-Way Widener digs up to a mile of clean, flat-bottomed subgrade per day, as wide as 48 inches. Fast, accurate control makes it easy to hold the desired grade. The result is a side subgrade of uniform width and depth, with no finegrading or hand finishing needed. The excavated section can be poured with or without forms. When one job is finished, the Hi-Way Widener transports itself over the highway to the next job location.

This one-man, one-pass excavating and subgrading machine obsoletes other methods of highway widening. Check it out. In every way you'll find that Gar Wood gives you more to bank on!

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Hoists & Bodies



Ditchers

"... the entrances and exits must be so calculated as to lure motorists off street ..."

PARKING starts on p. 50

brackets of above \$5,000 a year.

• **Ideal**—The perfect location would be across the street from a big downtown department store—and, better yet, next door to a movie theater besides. These two attractions would keep traffic flowing day and night, and traffic flow is a synonym for profits in the Allright system.

• **Engineering**—By itself, though, an optimum site isn't enough to guarantee success. The lot must be planned for quick turnover of cars. To begin with, the entrances and exits must be so calculated as to lure motorists off the street. In the Memphis garage where Matthews has his office, the main entrance has been pushed as close to Main Street as possible—a block and a half—even though some points in the garage are two blocks from Main. Half a block can make a big difference to a parker.

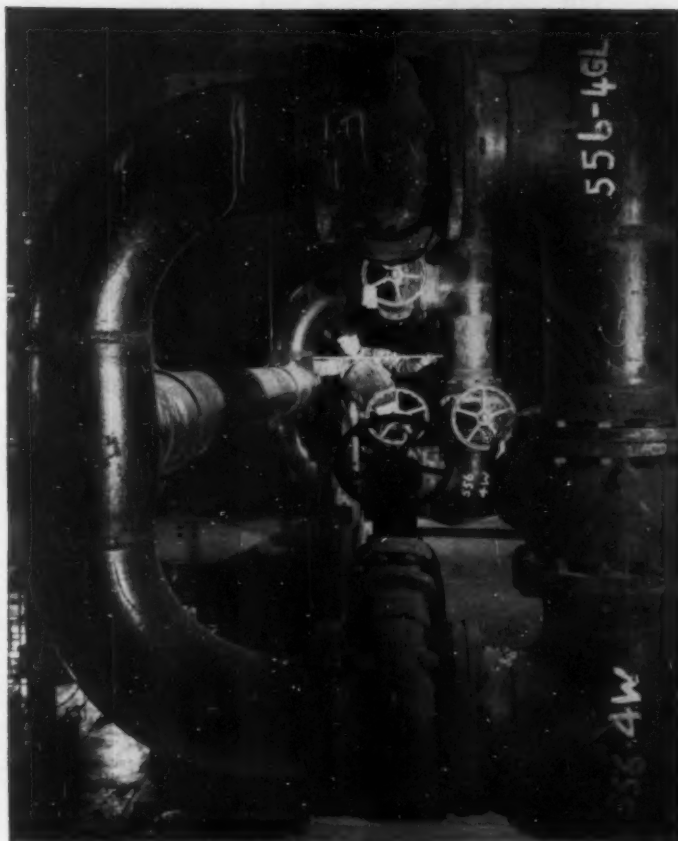
Within the lots, Allright techniques include angle parking, which may reduce capacity but almost always speeds flow. The importance of flow is obvious: One car in one spot all day will bring in about \$1; ten cars spending an hour each in the same spot will produce \$3.50 to \$4.

In downtown Houston, for example, Allright more than doubled the income from a lot by cutting capacity from 300 to 200 cars. With only one entrance—and that on an "off" street—the lot attracted mostly all-day customers. It was a mob scene morning and evening, dead in between. Allright's answer was to relocate entrance, exit, and pay booth and to raise the all-day rate. The result was turnover—and twice as much gravy.

Carothers followed the same paradoxical formula with a lot he runs in his own right in Birmingham. From a 300-car lot with \$100,000 annual gross, it was transformed by Carothers and Ennis into a 200-car layout that brought in \$117,000 the first year.

• **Under Cover**—Allright applies some of the same principles to designing garages. Ennis is the expert on that subject. The Allright associates will have nothing to do with the old-fashioned elevator garage. Ennis' designs use a system of spiral ramps to keep cars flowing through the garage—in such a way that incoming and outgoing traffic can never get in each other's way.

• **Costs**—Running a garage is a more expensive proposition. According to Carothers and Scott, cost per car (to



Pump header in dewatering plant. Pipe and fittings are Schedule 80. The plant will remove water from the slurry and prepare coal for combustion at a rate of 150 tons per hour.

Carries coal 110 miles by pipeline

Pittsburgh Consolidation Coal Company is now completing facilities for transporting coal by pipeline from Cadiz, Ohio, to the Eastlake Plant of The Cleveland Electric Illuminating Company. Part of this pioneering system is a dewatering plant at Eastlake in which welded piping with TUBE-TURN® Welding Fittings and Flanges plays a major role. The plant was designed and built by Fairmont Machinery Company, Fairmont, W. Va. Erection contractors: Merts Co., Inc., Cleveland:

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PERFECTLY UNIFORM. Rigid inspection and quality control of fittings and flanges by Tube Turns assures dimensional accuracy and uniformity. This means easier, faster fabrication. Application shown: Fabricating manifolds at Brown Fintube Company, Elyria, Ohio.



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AVAILABLE PROMPTLY. Your nearby Tube Turns' Distributor can fill *all* your needs in welding fittings and flanges. Call him for complete-line service. *One order . . . one source . . . saves your purchasing time.* Photo courtesy Park S. Hedley Co., Inc., Buffalo, New York.

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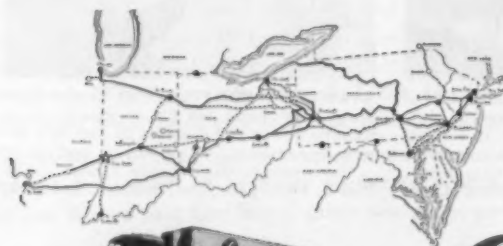
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move it in and out of a parking space) in various layouts goes like this: Pigeon-holes, 26¢; ramp garages, 18¢; lots, 6¢, and the new self-serve parking facilities, 1¢. In the Allright system, lots outnumber garages 20 to 1.

Rates vary tremendously with locations. In Memphis, it's from 35¢ to 80¢ for all day; in other cities, the range is from \$1 to \$1.25. The half-hour minimum starts at 15¢ and works up, depending on geography.

The same variations apply to wages of attendants, although the average is \$1 an hour. Arranging shifts to overlap at peak hours, when the biggest staff is needed, helps keep labor costs down. Managers earn \$300 to \$500 a month. And at the top of the heap is Carothers, who pays himself \$50,000 a year "plus capital gains," which from parking could bring his earnings to "in excess of \$200,000," he says.

• **Deals**—Negotiating a lease for a site Allright covets is often the most precarious of proceedings. But the chain can marshal some telling arguments. For one, Allright points to its \$8-million in revenues and 31-year record of observing lease agreements. Matthews' first lease in Chattanooga was with an insurance company that realized, in Allright's view, "a very reasonable income." The insurance company's recommendations then helped the chain clinch other Chattanooga deals.

To Allright, its reputation with landlords is so sacred that it has even renewed leases before expiration and paid increased rents.

• **Terms**—The average property owner will accept an income of 8% on his land value, which Allright considers a "very fair return." However, the chain has made a "good many" trades based on 6%," says Matthews. Mostly, it depends on the site's potential. In some instances, Allright will even cut the lessor in on the gross.

• **Sentiment**—Sometimes an owner is loath to let a lessee raze an old building that's still producing income. Allright can argue convincingly that although the gross return from a parking facility may well be less, so will the overhead—and the net will be fatter.

Allright has proved its case many times over. In Wichita, it spent \$10,000 last year to demolish an old theater and make way for a parking lot. Elsewhere in the same city, a lot replaced a garage that was structurally sound but awkwardly planned. In Tampa, Allright tore down the old DeSoto Hotel; the bill was \$30,000.

• **Gone Are the Days**—A spectacular example was the lovely antebellum Knoxville mansion that Carothers bought—not to live in, but to destroy, because for his purposes its location was ideal. The site is now a parking lot, profitable if not romantic. **END**

9 ways to save money with Permutit Water Conditioning:



1 Protect boilers, heaters, piping. Prevent destructive heat-wasting scale by softening hard water. Prevent corrosion by neutralizing acid water and removing oxygen.



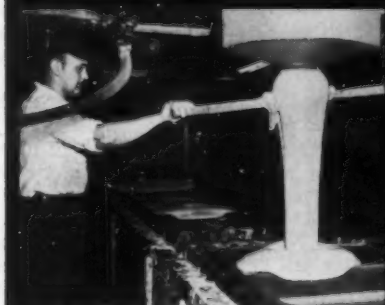
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3 Protect cooling-water systems. Algicides eliminate organic growths that plug lines, stop flow. Softening water prevents scale that impairs heat transfer.



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5 Up-grade chemical solutions. Removing salts from process water ensures uniformity, ends problems like pre-coagulation of synthetic rubber.



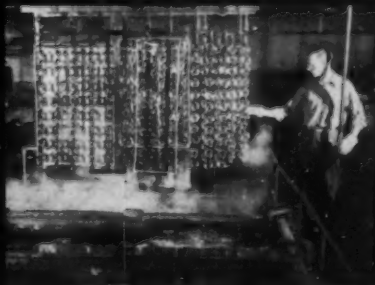
6 Up-grade low-cost nearby water. It often costs far less than buying city water! One steel mill cleans up sewage-polluted bay water for cooling hot strips, bearings, etc.



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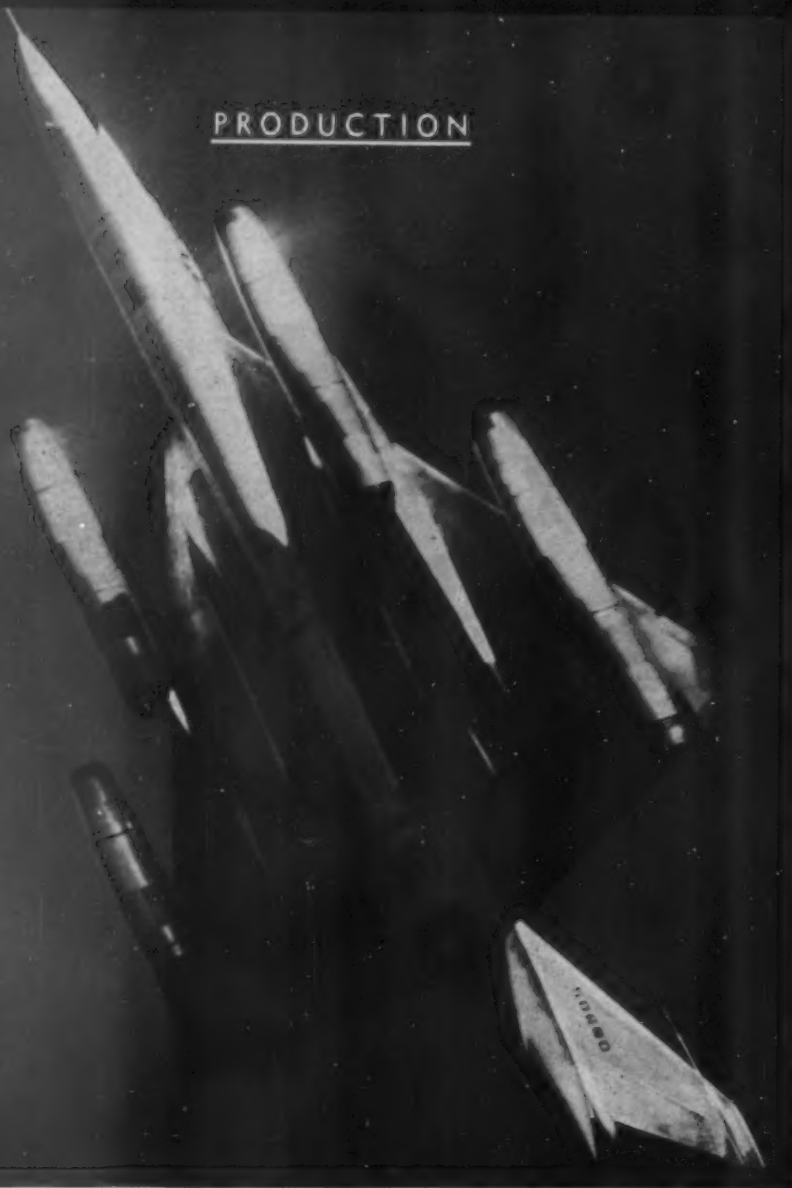
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PRODUCTION



Convair's new B-58 Hustler (above) is almost entirely held together by new kinds of adhesive. Makers of the aircraft and the glues are working together on the modern plane. They say . . .

It's Stronger, Lighter When It's Glued Together

"**N**OBODY is going to put any of my airplanes together with that library paste," snorted the chief engineer of a large aircraft company not long ago. He was huffing over a suggestion to use the fabulous new glues, instead of rivets, bolts, or spot welds, to hold parts of supersonic airplanes together.

New planes like the B-58 Hustler bomber (picture above) helped to change the skeptic's tune. The Hustler's

builder, Convair Div. of General Dynamics Corp., has no hesitation in describing it as "a glued-together" airplane. Convair's new F-102 interceptor also uses a lot of glue, and so do other modern planes.

It follows, then, that the same chief engineer was all ears at a recent conference in Los Angeles on adhesive bonding. More than 900 other engineers also attended the meeting, which

was sponsored by the Society of Aircraft Materials & Process Engineers. Two years ago, only 341 men attended a similar conference.

• **Airborne Stickum**—The shop talk and the papers that were read at the meeting testify to how far adhesive bonding has progressed in two years. Adhesives are being substituted for conventional fasteners all through the aircraft world, and engineers say there isn't a single jet on the drawing boards today that isn't planned to use adhesive joints. The people who put together the strong new heat-resistant glues are happy, too, about the increasing use of bonded plastics and honeycomb structures in airplanes and missiles.

Plane makers credit the new structural adhesives with some of the greatest recent gains in aircraft design and performance. They use the glues to bond metal to metal or to bond metal to plastics, ceramics, glass or almost any other material. In the F-102, for example, the fuel is carried inside the wings, without separate fuel tanks, because adhesives seal the wing surfaces against fuel leaks.

Adhesive bonding also makes possible the honeycomb structures, the high-strength sandwiches of sheet metal around a core of paper, plastic, or metal foil honeycomb, that lighten the latest planes.

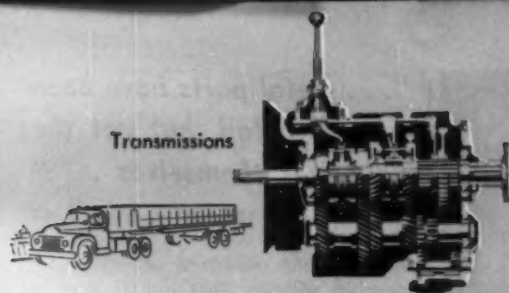
• **More Earthy Uses**—Though the aircraft industry is out in front in making adhesives do spectacular tricks, the advantages of adhesive joints haven't escaped the designers of more earth-bound products.

"It's hard to be specific about many of the new uses," says Bernard Gould, manager of market development for Rubber & Asbestos Corp. of Bloomfield, N. J., "because the people who have just discovered adhesives for their own products seem to think they have solved the riddle of the Sphinx and they want to keep it secret. But 99 times out of 100, there's nothing at all new in what they are doing. They have just found out on their own what every good adhesive formulator has been preaching for years."

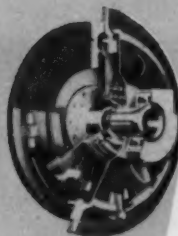
• **Epoxy's Growth**—The spread in use of the new glues is reflected by the greater amount of epoxy resin that goes into adhesives. Epoxies are a family of synthetic resins that will stick to a lot of things that other adhesives won't—things such as glass, stainless steel, aluminum, and some of the other plastics.

Sales of adhesives that are all or partly made up of epoxy compounds have risen from virtually nothing three years ago to an estimated \$12-million worth last year.

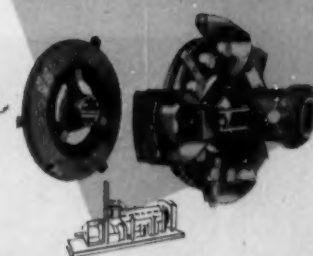
"You know that means new uses," says an engineer. "No one in his right



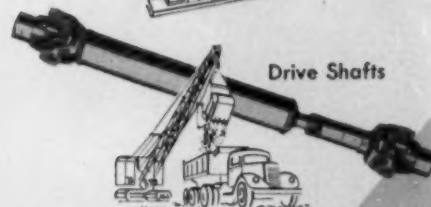
Transmissions



Clutches

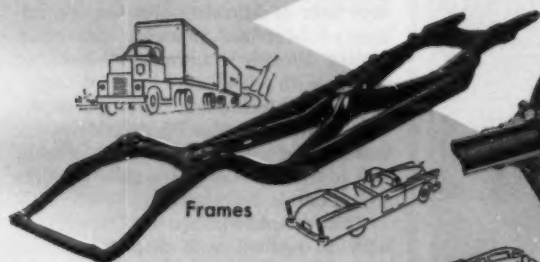


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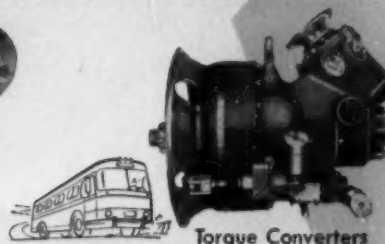
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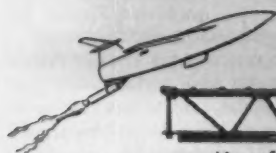
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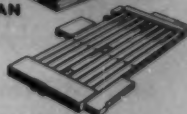
FORT WAYNE, INDIANA



DETROIT, MICHIGAN



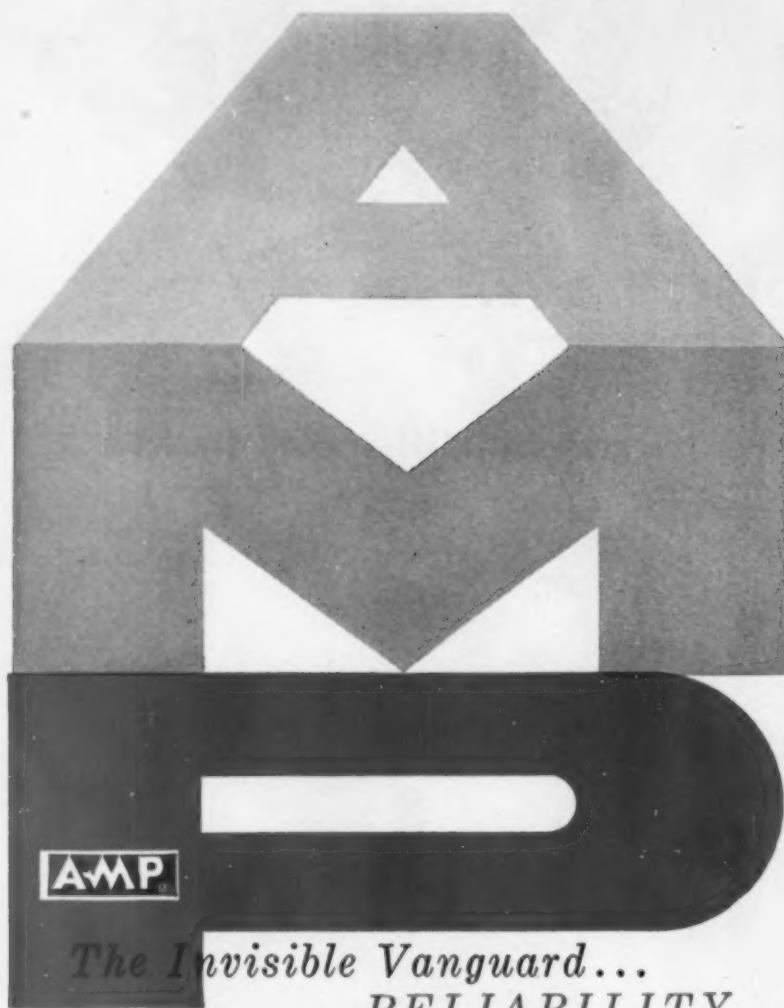
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"... metal parts have been known to fail, but not the adhesives themselves..."

GLUED starts on p. 62

mind would substitute an epoxy for another adhesive that did as good a job. You use epoxies because you've got to, when nothing else works. They're expensive, usually quite toxic, and relatively hard to handle because you have to mix most of them on the spot."

• **Costly, Too**—These drawbacks have undoubtedly held back industry's use of epoxy adhesives, though production men have been attracted by the simplicity of the bonding technique. A thin layer of adhesive, plus the application of heat and pressure, can often replace literally hundreds of bolts or rivets, with their problems of alignment, countersinking, setting, inspection. And when the bond holds better besides, the cost of a super-glue—from \$10 to as much as \$85 a gallon—seems well spent.

"The people who are used to working with \$2-a-gallon stuff and then come up with jobs it can't handle really holler when we quote our prices for special high-performance adhesives," says one maker. "And I can't blame them. But the high-performance stuff is hard to make, and it does seem to do a good enough job to get reordered."

• **Convair Converts**—One company whose reorders have expanded spectacularly is Convair, whose Hustler and F-102 lead the pack in adhesive magic.

"About the only parts of the Hustler that aren't bonded together are the windshield and the landing gear," says W. K. Bailey of Convair.

One other area of the Hustler also awaits adaptation to adhesive bonding—the steel parts that must withstand the heat of the engines. These are still furnace-brazed, but adhesive bonds for even these parts are under development. The aluminum skin is wholly adhesive-bonded, and much use is made of adhesive-bonded honeycomb structures that can use steel without exceeding weight of an aluminum part.

So strong are the glues, says Bailey, that although metal panels and honeycomb structures have been known to fail, there have been no failures of the adhesives themselves. North American Aviation, Inc., reports only a single failure on an adhesive bond because of high-intensity sound, which creates problems of fatigue.

• **Gains and Savings**—C. R. Riley of Northrop Aircraft, Inc., another pioneer in aviation use of adhesive bonding and honeycomb structures, says the new method in one typical case reduced the

number of parts to be assembled from 3,000 to 300. He predicts that honeycomb will soon be used for wing and fuselage sections that carry primary loads.

Riley cites one case where a glued-together honeycomb aluminum structure showed greater strength than a conventional riveted assembly. That was in tail sections for the Boeing KC-135 aerial tanker. Northrop builds these sections under subcontract.

The first section built by Northrop followed standard procedure of riveting the pieces together. Under the punishment given by operation of the fueling boom that's housed in the tail, the metal crumpled like tinfoil and shed most of its rivets. But when Northrop and Boeing tried adhesive bonding, failures stopped—the effects of buffeting and fatigue are spread over a wide area in a glued structure, instead of being concentrated at the fastening points as in a riveted structure.

Specialists in making the honeycomb sandwiches are growing along with the adhesive makers. For example, Hexcel Products, Inc., of Oakland, Calif., has grown from 26 employees and \$35,000 sales in 1950—its first year—to 400 employees and sales of more than \$5-million, maybe as high as \$10-million, in the current year.

• **New Qualities**—A. C. Marshall, Southwest regional manager for Hexcel, says some adhesives on the market can withstand continuous temperatures up to 450F and intermittent heats of up to 700F. He expects the glue makers to add 100F to these ranges within two years, and some engineers at the Los Angeles conference said the gain would be more like 200F.

F. J. Riel of Narmco, Inc., of San Diego, Calif., reported to the conference on progress that's being made in adhesive bonding of stainless steel. Honeycomb made of this metal is now brazed or spot-welded; adhesives don't hold stainless steel with perfect assurance under prolonged temperatures above 300F. New glues are being studied, as well as new methods of preparing the metal surfaces for the adhesive.

• **Plastics**—One place where adhesive bonding has no peer is in plastics, both in gluing plastic to plastic and in gluing plastic to metal. This quality permits wider use of plastics in planes and guided missiles.

Herbert P. Buetow, president of Minnesota Mining & Mfg. Co., which makes the adhesives used in the B-58, says the bonding process provides four to 10 times as much resistance to fatigue as riveting does. He says the aircraft builders are thinking of making the entire nose section of a plane in plastics, to reduce the buildup of heat at high speeds. He also suggests that

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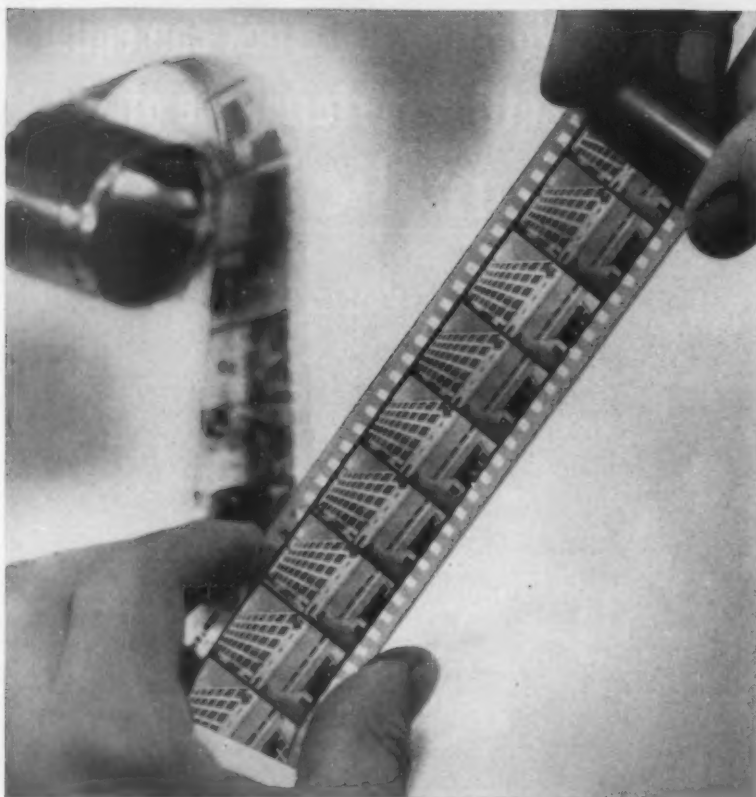
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adhesive bonding will find new uses in automobiles.

Lowell O. North, a Narmco engineer, told the meeting about his company's success in using adhesives to fabricate missile fuselage sections, 5 ft. in diameter and 8 ft. long, from reinforced plastics. The sections are 57% lighter than if they were made of aluminum, he said.

V. F. Hribar of Hughes Aircraft Co. told of adhesives' role in the Falcon missile, where they have proved particularly effective in holding together such dissimilar materials as glass fiber laminates and magnesium alloys.

PRODUCTION BRIEFS

All-aluminum overhead cranes—the country's first—are going into the Ravenswood (W. Va.) plant of Kaiser Aluminum & Chemical Corp. The big advantage: A weight saving of up to 50% over steel allows faster acceleration and deceleration—which adds up to greater work capacity. Kaiser says higher initial cost (5%-8%) is no drawback because of lessened installation expense and savings from the lighter support structure.

The gamble on titanium (BW—Jan. 26 '57, p180) is beginning to pay off. Titanium Metals Corp. of America reports 1956 earnings of \$11,026,000 on sales of \$55,128,000. Titanium Metals, one of the leading producers and fabricators of the lightweight, temperature resistant material, is jointly owned by the National Lead Co. and Allegheny Ludlum Steel Corp.

Three big automobile companies have accelerated their studies of gas turbines. Ford has installed a gas turbine engine for tests in a 1957 tilt cab truck. At Chevrolet, a refined version of the Firebird II turbine, adapted for heavy trucks, has completed six months of testing successfully. And Chrysler says it is almost doubling its laboratory facilities for gas turbine research.

New York's skyline grows ever more colorful. The nation's first gold building entirely of anodized aluminum will go up at the corner of 51st and Lexington. Sheathing for the 34-story office building—in two tones—will be fabricated and erected by the Reynolds Metals Co. Sam Minscokoff & Sons, Inc., are the builders.

A new type stainless steel—a high strength, corrosion resistant alloy with better mechanical properties than the usual "18-8" stainless—has been developed by Ohio State University for the Alloy Casting Institute. It is called type CD-4Mcu.



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Circulating pumps used in hot water heating systems must be silent—vibrationless in operation, since they are the connecting links between the boiler room and the structure itself. A prime requirement for quiet pump operation is an electric motor that operates almost silently, yet has plenty of stamina to hold up under years of hard, steady operation.

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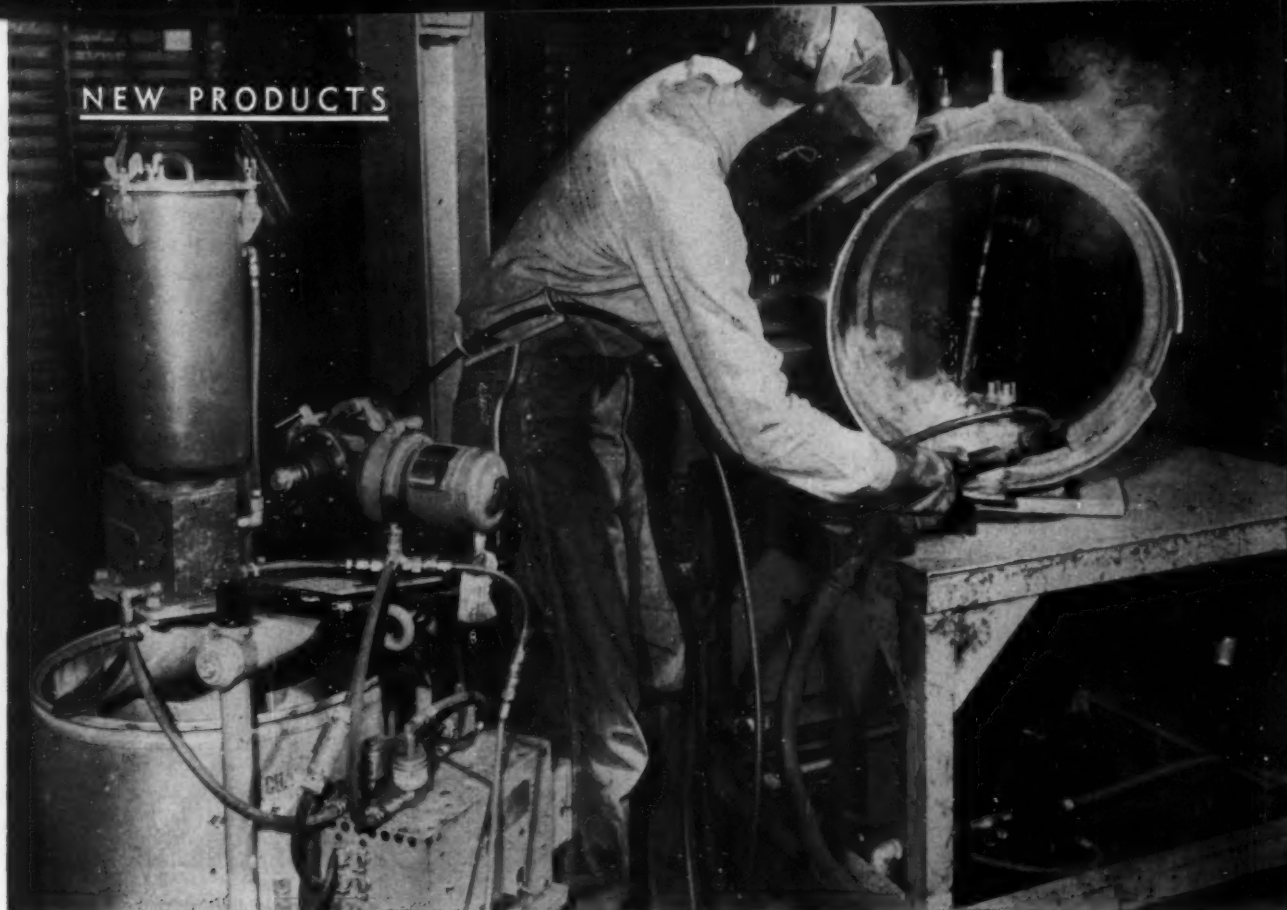
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NEW PRODUCTS



New arc welding system has a continuous electrode wire and uses inert gas to feed powdered flux in a steady stream to the arc. It combines two systems now in use. Result is . . .

An Arc Welding System That's Speedy, Flexible

A new arc welding system that works like a paint spray gun combines the versatility of coated rod arc welding and the fast deposit rate of submerged arc welding. It also eliminates production variables and down time. The system is being manufactured by Linde Air Products Co., a division of Union Carbide & Carbon Corp.

• **Old Methods**—In coated-rod welding, an arc is struck between a flux-coated rod $1\frac{1}{4}$ ft. long and the base metal to be welded. This melts the rod and flux and forms the weld. The welder can work in almost any position, but must stop every minute or two to get a new rod.

In submerged arc welding, powdered flux is usually fed from a can in front of a gun that feeds a continuous electrode wire. An arc is struck between the base metal and the wire while it's

submerged in the flux. This continuous-feed method is fast but work can only be done in a position where the flux will stay in place.

• **New System**—The new torch uses a continuous electrode wire and a powdered flux that is fed to the nozzle by inert carbon dioxide. At the nozzle, the magnetic field created by the electric current passing through the wire magnetizes the flux and attracts it to the wire, coating the wire as it is fed to the arc. The combination flux and gas stabilizes the arc and the stream of molten metal passing through it to the molten puddle. Work can be done at any angle without changing rods.

• **Cost**—Linde estimates that a 100 ft. fillet weld that would cost \$12.69 using other methods can be done with it's Unionarc method for \$8.58.

The complete Unionarc system costs

approximately \$2,400. In addition, Linde charges a license fee of $2\frac{1}{4}\phi$ for each pound of rod used.

NEW PRODUCTS BRIEFS

An electric cord that stretches has been developed by Mutual Electronic Industries Corp. The new cord can be coated with Fiberglas, rayon, silicone rubber, or nylon and is designed for use with telephones, switchboards, appliances, and for industrial and military applications. The cord, called Elasticable, can be purchased in almost any color. Cost varies with the color and number of conductors. A telephone cord costs 95¢.

• A new tool retracting device that does not build up excessive pull when it's stretched for a long period is now on the market. The device automatically retracts power tools with dangerous working heads to a safe position when not in use. The self-contained unit uses a constant torque spring instead of a coil spring. It is manufactured by Hunter Spring Co., Lansdale, Pa. Cost varies with the size and number of devices ordered by tool manufacturers.

Making

RESEARCH

MAXIMUM DECELERATION (ENTRY FROM PARABOLIC ORBIT)

$$\left(\frac{-dv}{dt}\right)_{\text{max}} \text{ EARTH'S}$$

θ	VENUS	EARTH	MARS
25°	142	141	8
20°	112	111	5
45°	230	220	10
90°	326		

Researchers from private industry are joining scientists from college campuses and the military in licking the problems of interplanetary travel. Though there are plenty of problems to be solved before you can take a trip to Mars, that day may come in a generation or so.

These men—top-level scientists, research directors of private companies, and military leaders—were part of a group that met in San Diego last week to discuss a travel problem—how to get to Mars and back.

Up to until recently, interest in space travel, or astronautics, has been confined to science fiction addicts and a coterie of scientists and engineers. The general public knows little about the complicated scientific problems involved in outer space travel. And most people would probably be quite surprised to learn how many fairly hard-headed companies and government agencies are now studying the field of space exploration and travel.

• **The Outlook**—But the experts think the next generation may well be riding around in space ships. Already science is capable of building a rocket that could reach Mars in 400 days and return in about 320 days, in the opinion of Dr. Ernst Stuhlinger—one of the men who helped design the Redstone and Jupiter ballistic missiles. Now scientists have to crack problems involving space vehicle propulsion, communications, and, perhaps most important of all, getting the space ship back to earth in one piece.

Registration of over 500 for the San Diego symposium reflects the widening interest in outer space travel. Brig. Gen. Hollingworth F. Gregory, commander of the Air Force Office of Scientific Research, remarks that "science and the military have been working on joint space flight research projects for some time." Now it's obvious that industry is interested in space travel, too.

• **Gaping Holes**—There are a lot of gaping holes in our knowledge about space flight. Scientists have managed to design missiles capable of penetrating the ionosphere, some 50 to 250 miles above the earth. They're building an earth-circling satellite that is expected to be launched into its orbit sometime within the next year. But there's a long theoretical gulf between making an unmanned satellite circle the earth and building a space ship in

RE-ENTRY PANEL

at space travel symposium heard Rand Corp.'s Dr. Gazley discuss bringing space ships safely back to earth.

Way for Travel in Outer Space



DR. ALFRED A. EGGERS of NACA Ames Aeronautical Lab draws graphs to illustrate heating and motion problems.



DR. THEODORE VON KARMAN, NATO adviser, talks with Bell Aircraft's W. R. Dornberger.



DR. ANTONIO FERRI of Polytechnic Institute of Brooklyn was one of many scientists from universities participating in astronautics meeting.

DR. HUBERTUS STRUGHOLD, Chief of Air Force's Dept. of Space Medicine, led discussion on human factors of space travel.



"WE'LL NEVER BUY ANYTHING BUT TUBELESS TIRES... FIRESTONE TUBELESS"*

*That, in the words of Mr. C. F. Copeland, briefly sums up the way the Pontiac Auto Transport Company of Buffalo, N. Y. feels about tubeless truck tires. Mr. Copeland is vice president and former maintenance supervisor of the line, which makes deliveries of new cars from Buffalo to dealers in New York state, Pennsylvania, New Jersey, West Virginia, Virginia, and Ohio. The company operates 95 trailers and approximately 30 of their own tractors. They have equipped most of the tractors with tubeless tires, and Mr. Copeland was interviewed to find out what Pontiac's experience to date has been.

Q. *How long have you been running on tubeless truck tires, Mr. Copeland?*

A. About a year. We first got interested in tubeless when we started hauling the new passenger cars equipped with them. In the past, we had to fix about 25 to 30 flats a day on cars in our storage lot. But since the car manufacturers put tubeless tires on the cars, we don't have more than one flat a day—and that's out of 300 cars. That's why we switched to tubeless truck tires.



"We get at least 45,000 miles on the tubeless tires on the tractors before recapping," Mr. Copeland reports. "We haven't had to recap any tubeless more than once so far, but it looks like we'll get two or three recaps out of them."

Q. *From your standpoint, and from your experience with them, what are the advantages of tubeless truck tires?*

A. Well, our only tire service facilities are here in Buffalo. Our drivers normally carry spares and change flats on the road themselves, which delays deliveries and ties up our trucks. With tubeless tires though, punctures show up as slow leaks, and we can cut down-time and costs by making repairs when it's convenient. Also, we've had considerable breakage with wheels on tubed tires, and that's plenty expensive. With our tubeless tires, which we run with Firestone rims, that problem is eliminated, too. And, of course, there's no valve trouble with tubeless—or at least, we've never had any.

Q. *What about mileage, Mr. Copeland?*

A. I know tubeless tires run cooler and give better mileage, but I think the people who really notice a big difference there are the boys with long over-the-road hauls. We're sold on tubeless for several reasons, but, of course, we like the extra mileage, too.



Pontiac Transport specifies Firestone Tubeless on all new equipment. Here Jerry Mason, Firestone Representative in Buffalo, inspects a newly delivered Firestone-equipped tractor being readied for the road.

Q. *Ever had any trouble with tubeless tires?*

A. We had a few leakage problems on the first ones we bought, but that was *before we switched to Firestone Tires and Firestone Rims*. Since then, no trouble.

Q. *In summing up you'd say your biggest savings with tubeless has been maintenance?*

A. Maintenance *and* inventory costs. Since we've been buying Firestone Tubeless, we don't have to stock so many tires. I get fast service whether I buy two tires or two hundred, so there's no need to tie up money and space in inventory. As for maintenance, right now our tire bill comes to about \$4000 a month. Tubeless tires are bringing that cost down, and when we're running 100% on tubeless, we'll really have a savings.

Q. *Then you'd recommend tubeless tires to other truckers?*

A. I certainly would. And I am sure tubeless truck tires will save them money.



SUPER TRANSPORT

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TRANSPORT HEAVY DUTY

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which man can travel through outer space—with a reasonable expectation of living to tell about it.

• **Re-Entry Problem**—One big problem in space travel is what the scientists call re-entry. That means getting the vehicle back safely into the earth's atmosphere. This problem isn't involved in the unmanned satellite project. Navy researchers will be happy if they can get the satellite up into the ionosphere and make it orbit for a couple of weeks so it can send back signals of recorded geophysical and solar information. They are not bothered by the fact that the satellite eventually will be pulled back into the denser earth atmosphere by gravity and burned up.

But when dealing with manned space vehicles, the re-entry problem can't be ignored. What the scientists will have to do is hit upon a method of slowing the vehicle down and protecting it against the friction heat it creates as it dips into heavy air at about 180 miles above the earth.

The problem first arose in connection with V-2 rockets and has never been solved satisfactorily. One possible solution might be to design a control system capable not only of maneuvering a space vehicle while in flight, but also able to make last-minute corrections in trajectory at the crucial moment when the spinning vehicle breaks into the earth's atmosphere.

This way, scientists might be able to achieve gradual re-entry. By re-entering the denser air at an almost flat trajectory angle, the space ship should encounter a minimum of friction.

• **Need for Study**—In a closely related research project, scientists are trying to find out more about the composition of the planetary atmosphere. What should—or could—a vehicle be made of to best withstand the largely unknown atmospheric conditions in the ionosphere? Scientists working on the satellite have chosen magnesium because of its high strength-to-weight ratio for their man-made moon (BW-Apr. 14 '56, p188). But a manned vehicle will have to be braked quickly from tremendous speeds to avoid burning up on re-entering the earth's atmosphere. Magnesium—and any other known light materials would be torn apart under such conditions.

Dr. Allen A. Eggers, of the NACA Ames Aeronautical Laboratory, recommends an intensified study of the upper atmosphere as the only way to cope with this problem. High-energy, low-density gas dynamics research, as this science is called (BW-Nov. 3 '56, p122), is now being conducted in labs throughout the country. Researchers have devised ingenious methods to discover what happens to the ionosphere when a body passes through it at very high speeds, what the atmosphere is actually

like at very high altitudes, and what aerodynamic flight problems missiles and space ships will run into in the ionosphere.

• **Status of Research**—Notable progress has been made in recent months in the design of mammoth wind tunnels, giant shock tubes, and even electric arcs to test the effect of supersonic spin on prototype missiles. But scientists haven't been able to evolve nearly enough solid theories even to indicate that they're on the right track in pursuing many of the supersonic questions that now baffle space ship designers.

This state of affairs is characteristic of the science of astronautics, according to James Dempsey of Convair. Scientists, he says, are just getting their bearings, just beginning to recognize the problems they are up against and mapping out possible avenues for attacking them.

• **Communications**—Special problems will also arise in the field of communications and tracking. Scientists working on the satellite, which is only 22½ in. in diameter, must make certain the artificial moon isn't propelled more than 300 miles out beyond the earth. If it is, its reflection won't be able to be observed from the earth. And telemetering equipment, limited because of weight restrictions, won't be able to send strong enough signals to be picked up by ground-receiving stations.

Knowing what the scientists are up against, a number of industrial research departments are working hard to develop equipment that's lightweight, small. One possibility is the substitution of atomic batteries and transistors for usual battery and tube components.

• **Umbrella Antenna**—Another recent development along this line is a huge umbrella-like antenna specifically designed by Systems Laboratories to be carried by a space vehicle. It measures one kilometer (or more than one-half a mile) in diameter, and would permit much greater communications range.

Next step, says Systems Labs' Pres. James A. Marsh, is to develop transmitting equipment for such an antenna. Here again the problem of weight will be tricky to beat. On today's conventional aircraft, 1 lb. of electronics equipment requires 7 lb. of aircraft to carry it aloft. But for space vehicles the ratio is much less favorable—anywhere from 100 to 1 to 6,000 to 1.

The newly developed umbrella antenna, spinning around like a searchlight, however, would be very valuable in space communications. It might be able to pick up radio signals sent from the earth. And it would be extremely useful as a potential means of controlling the flight path of unmanned space vehicles. The antenna-less man-

made satellite, for example, will only be able to send signals, not receive them. And earth-bound scientists won't be able to control it at all once its burned-out second-stage rocket has fallen off. It will be up to the third rocket to position the satellite in its orbit, but the scientists will have no control over its flight at this point.

• **Propulsion**—Even the question of how to power a space vehicle efficiently is largely speculative when compared with the fairly concrete plans for propelling the satellite and various guided missiles. But a growing number of researchers are putting their brains into the job of coming up with the right answer.

The satellite will be pushed into outer space by a three-stage rocket of fairly conventional design. The thrust from the rocket will give it a speed of over 18,000 mph. But this isn't enough kick to get space ships to travel around the moon or Mars.

• **Better Fuels**—Theoretically, according to William Bollay, president of Aerophysics Development Corp., the development of higher energy fuels should improve the efficiency of today's chemical rockets by as much as 50%. This may mean we'll be able to explore our own solar system. But, riding on such chemical fuels, a man would have to expend his whole lifetime to reach the nearest fixed star—4 light years away.

• **Nuclear Power?**—One school of scientists thinks that nuclear power may be answer. The Air Force, for example, is studying two areas of ionic propulsion. Ions are atoms or molecules from which an electron has been stripped. If scientists can harness a nuclear reactor to expel fuel ions in a stream, they might be able to devise a means to translate this energy into thrust. One way would be to recombine the ionized fuel material to produce drive energy; another would be to accelerate the ionic particles by pushing them with a magnetic field.

The first step in making ionic propulsion practical, says Dr. Y. C. Lee of Aerojet-General Corp., is to find a way of producing ions in quantity with a low expenditure of energy. After that, scientists will be ready to tackle the major difficulty involved in nuclear rockets—the fact that their fuel components will be hotter than the gases they throw off, the reverse of normal engine conditions.

• **Untried Theory**—Some researchers also believe it may be possible to propel tomorrow's space ships with photon rockets. But, at the present, this is purely a mathematical conception.

A photon is a little package of light. A photon rocket, once it had been boosted to tremendous speed by other means of propulsion, would be kept at



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a constant speed through use of light-producing apparatus and reflectors instead of an engine. Light would be directed into a jet-like stream by the reflectors. The drawback to this system is that science has not developed reflectors that can turn light into a beam powerful enough to propel the weight of the vehicle plus the light-producing apparatus. Reflector's made out of today's materials would turn most of the light into heat and wreck the vehicle. But if reflectors can be made efficient enough, some scientists believe, the energy potential from a photonic system would be 10-billion times higher than the energy potential of present chemical propulsion systems.

• **New Projects**—On the assumption that ionic propulsion is much nearer at hand than the photon system, Litton Industries, Beverly Hills, Calif., is doing the research on a project to send an unmanned vehicle up to orbit around Mars and on another for a high-vacuum space laboratory in which humans could exist. The latter project is sponsored by the Air Force Office of Scientific Research.

The first project calls for putting an ionic-powered unmanned space vehicle up into a gradually expanding orbit around the earth, then transferring it into an orbit around the sun, and finally into a gradually decreasing orbit around Mars. The first space ship would simply be expected to transmit photographs of Mars back to the earth, without trying to land. Transferring such a vehicle from one orbit to another involves some pretty severe acceleration and deceleration problems. So does controlling an orbit-jumping space ship.

• **High-Vacuum Lab**—Of greater immediate importance is Litton's project to build a high-vacuum laboratory in which humans can survive. This should be ready for test by the end of May.

In addition to cutting down development time for electronic equipment needed for unmanned space ships, the laboratory could be used to simulate the conditions of outer space and test man's reaction to them.

• **Human Problems**—Several problems crop up immediately if man is to live in a vacuum. First, he must be fitted with a pressurized suit that is inflated roughly to the pressure of a football. This means he will encounter difficulties when he tries to bend his fingers to perform delicate adjustment operations. Litton is trying to get around this problem by developing special joints in its space suits. Then, a means will have to be devised to cool the man inside the suit to compensate for the heat his body gives off. And, most important of all, provisions must be made to keep the space-suited man alive if his pressurized outfit should fail. **END**



BILL MORGENTHALER, Manager of Grain Valley, Mo., Airport Corporation, says:

"We saved \$1.00 per square foot by building our two hangars on Penta-treated poles."

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"We'll use this cost-saving construction in another 15 stalls soon and plan to complete 100 eventually."

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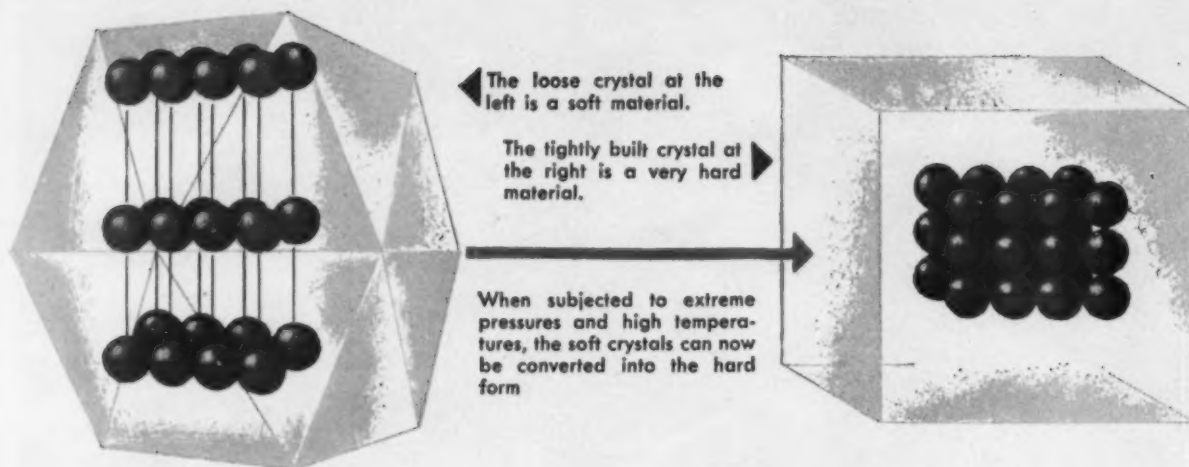
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BORON NITRIDE was converted into.....BORAZON, a new synthetic material harder than diamond.

Next problem

Converting OTHER SOFT MATERIALS into.....NEW SYNTHETICS even harder and tougher than borazon.

Science Outdoes the Diamond

Modern industry cries for materials harder even than nature's best effort, the diamond. Researchers, using extreme pressures and heat to transform one form of crystal into another (above), have come up with a new material, borazon, to fill the need.

Their success opens the way for a possible whole new line-up of materials harder than anything now known.

Superpressure research—work with materials at extreme pressures and temperatures—came up last month with an entirely new material that has never been found in nature, one that's harder than the hardest nature can offer.

Borazon—the name given to the synthetic cubic form into which boron nitride is converted under superpressure (above)—is so hard it scratches a diamond with ease. And it remains hard at temperatures where a diamond literally burns up (pictures at right).

The importance of the discovery, however, goes far beyond the fact that a new cutting material will become available for industry. For the first time, man has created a crystal of a material he had good reason to believe couldn't exist.

Trying to make borazon, in the opinion of its discoverer, Dr. Robert H. Wentorf, Jr., of General Electric Co., was like trying to catch a special kind

of fish that no one had ever seen, in a strange lake. He wasn't sure (1) whether the lake had any such fish or (2) whether any lake anywhere had such a fish. Other fishermen—his scientific confreres—were openly dubious.

The successful synthesizing of borazon now opens the way for even harder substances. The time-honored belief that "only diamond scratches diamond" is obsolete. Using similar methods of superpressure (over 1-million lb. pressure per sq. in.), it should be possible to make a whole new line of extremely hard, man-made materials highly resistant to temperature and abrasion.

Such materials will be in constant demand in the jet age of tomorrow.

• **New Impetus**—Scientific exploration of what happens to solid matter when it's subjected to high pressures has been going on since the time of the early Florentines. Men have been trying to uncover the many mysteries in-

volved—hoping that their discoveries would provide a key for turning lead into gold or coal dust into diamonds.

In modern times, industry's hunger has added fresh impetus to the search:

- From the oil industry has come an urgent call for a better-than-diamond drill bit that won't grind itself away, as the diamond bit does.

- Auto makers have been asking for a new abrasive that will make it possible to grind steel castings at higher speeds (and therefore higher temperatures) than at present.

- Toolmakers—fashioning tools for modern industry out of such relatively tough materials as tungsten carbide—have been hunting through mines and laboratories for new materials to coat their grinding wheels.

- **First Break**—But little real progress was made until the last couple of years. Scientists had no direct method for measuring the compressibility of solids. They had no absolute definition for hardness. Very few laboratories had even the few simple pieces of equipment needed for routine pressure experiments—let alone high-pressure work.

The big break in the field came two years ago, when General Electric Co. scientists produced the first synthetic diamonds, made by subjecting graphite

to 1.5-million lb. pressure at 5,000F (BW—Feb.19'55,p64). The synthetic GE diamonds were positively identified in every respect with diamonds found in nature.

• **New Search**—But diamonds, however glamorous, have one serious drawback from an industrial point of view. Whether they are natural (at \$6,000

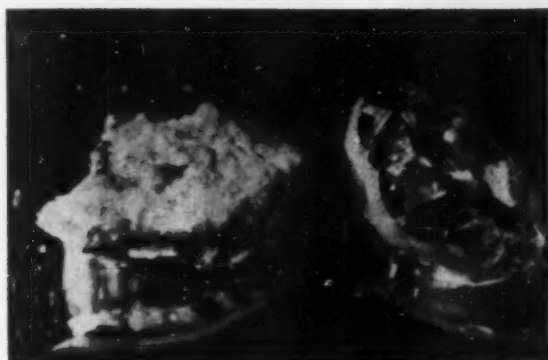
per lb.) or synthetic (at \$2,000 per lb.), diamond chips used on a grinding wheel melt at 1,200F. The ideal material for grinding purposes would be in the same order of hardness and have the same cutting rate—but a much greater resistance to extreme heat.

The search for such an elusive material seemed doomed to failure even

before it started. What Wentorf and his associates were after was something they didn't know existed or could exist—with properties equaling or surpassing those of a material once thought to be the ultimate.

• **Crystals**—Solid matter, as every chemist knows, can be divided into two general classes—crystalline solids like sugar

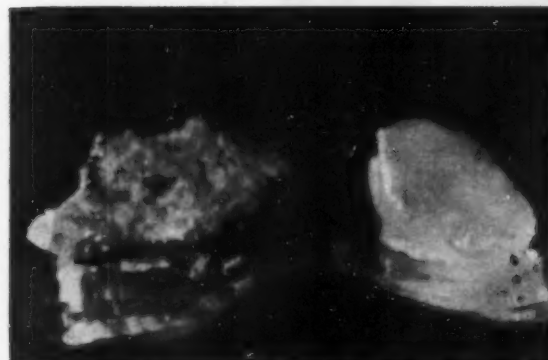
Man-Made Borazon Holds Under Heat That Burns Diamond



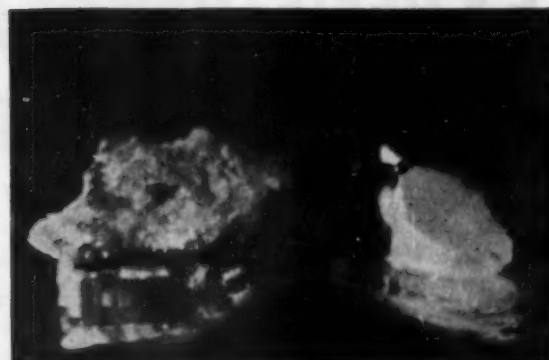
START. Borazon, diamond begin test . . .



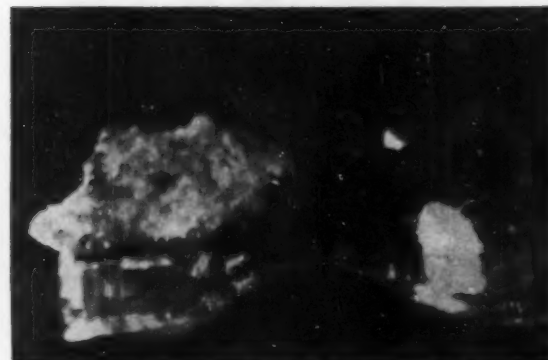
30 SEC. Borazon (left) holds out at 1,600F.



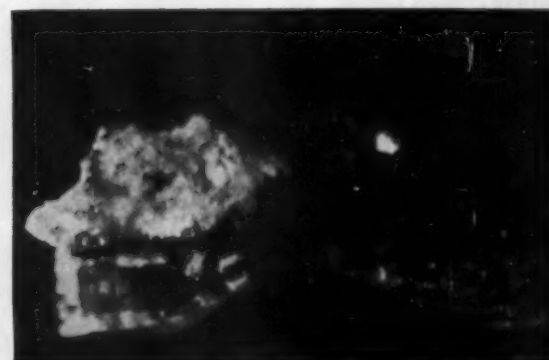
60 SEC. Heat affects diamond (right) . . .



90 SEC. And diamond begins to oxidize.



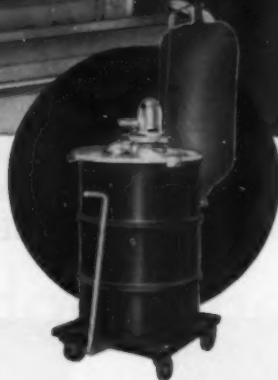
2 MIN. Diamond is visibly shrinking . . .



2½ MIN. It vanishes like any piece of coal.



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and salt, and amorphous solids like glass. In crystals, the atoms or molecules are arranged in definite geometrical patterns. The mechanics of crystallization is extremely complex. But the particular arrangements of atoms and the way they are held together is just as characteristic of a particular material as a thumbprint.

Alkali metals (sodium, potassium, and so on) all crystallize in a particular so-called "body-centered," cubic structure, in which each atom is connected with eight others. This is a rather loose packing arrangement; hence these metals are characteristically soft. A diamond, however, takes a tight crystalline configuration—a "face-centered," cubic, close-packed lattice, in which each carbon atom connects with 12 others. Its carbon atoms, moreover, are bound by an especially tight kind of electron bond.

Carbon atoms can also crystallize in an alternate way: As graphite, they are tightly bonded in one plane into sheets, but the separate sheets are only loosely connected with each other.

Hexagonal boron nitride (diagram, page 78) forms, like graphite, a crystal of tight-packed sheets loosely connected with each other. Essentially what Wentorf and GE have done is to take this hexagonal boron nitride, and with the application of tremendous pressures and temperatures, to force the sheets into a face-centered cubic form—like the diamond.

• **No Precedent**—Scientists had long known that there were alternate crystalline forms of sulfur, phosphorus, silica—but in each case, the alternate form exists in nature. Nothing in the literature of science suggested that such a structural change could be forced on a crystal that didn't somewhere take that form itself.

Moreover, though the crystal of hexagonal boron nitride is similar to the crystal of graphite—the form of carbon used to make diamonds—the resemblance ends there.

Graphite is black, and is a good conductor of electricity. Boron nitride is white, conducts electricity poorly.

To the physicist, these contrasting colors and electrical properties are significant. They mean that graphite has free or unattached electrons in its crystal. These electrons are able to oscillate and absorb the energy of light, and thus make the graphite look black; they are also the carriers of electricity in graphite. It's because boron nitride lacks such free electrons that it is white and doesn't conduct electricity.

So on paper there was no reason to believe that boron nitride could be made to behave like graphite under high pressure and high temperature—since there were no free electrons to bind the molecule closer together in



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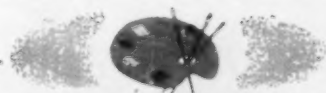
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cube form, as in the case of graphite converted into diamond (page 78).

• **How It Came**—In the face of such odds, the fact that Wentorf and his associates were able to come up with borazon is a tribute not only to GE researchers but to the policy of underwriting scientific research that purports only to give man a better understanding of the world about him.

Wentorf went ahead with basically the same equipment used to synthesize the original GE diamonds. When he subjected boron nitride to superpressures of over 1-million lb. psi. and temperatures of 5,000F, he found this resulted in forming tiny crystals no larger than grains of sand and of almost any color—from yellow to red, black, and white.

What evidently happens, he explains, is this—the extreme temperature and pressure force each nitrogen atom in the boron nitride molecule to give up one of its rarely used electrons to a boron atom. The boron atom uses this electron to form another chemical bond with a nitrogen atom—and in this way sheets of atoms are tied together to form a strong crystal, like the diamond.

Additional details of the process remain, for the moment, a company secret. But the fact that GE expects to use the find as a jumping-off place in the search for even harder materials is openly admitted.

• **Test Ahead**—The real test for borazon, says Dr. C. G. Suits, GE vice-president and director of research, will come when it's placed on a cutting wheel and its abrasion qualities are tested. No substance, however hard, can be used on a grinding wheel if it crumbles, regardless of its resistance to heat. X-ray diffraction tests of borazon (only two grams of which have been produced to date) show that the alternate atoms of boron and nitrogen are packed together almost as closely as carbon atoms in a diamond, so there's every expectation it will pass this test.

If it does, it will be able to compete on a cost basis for industrial use. Its cost would be on the order of the \$2,000-per-lb. figure for synthetic diamonds, against \$6,000 per lb. for the natural diamonds.

• **Spur**—What's most exciting, though, is the spur borazon is sure to give to high-pressure materials research generally. Dr. Anthony J. Nerad, head of the Physical Chemistry Dept. at GE Research Laboratories in Schenectady, maintains that the lid is just coming off superpressure's potential. He thinks science can get still higher pressures and still higher temperatures.

If such is the case, we may see a whole new line-up of materials in the future—materials kicked off by the discovery of borazon. **END**

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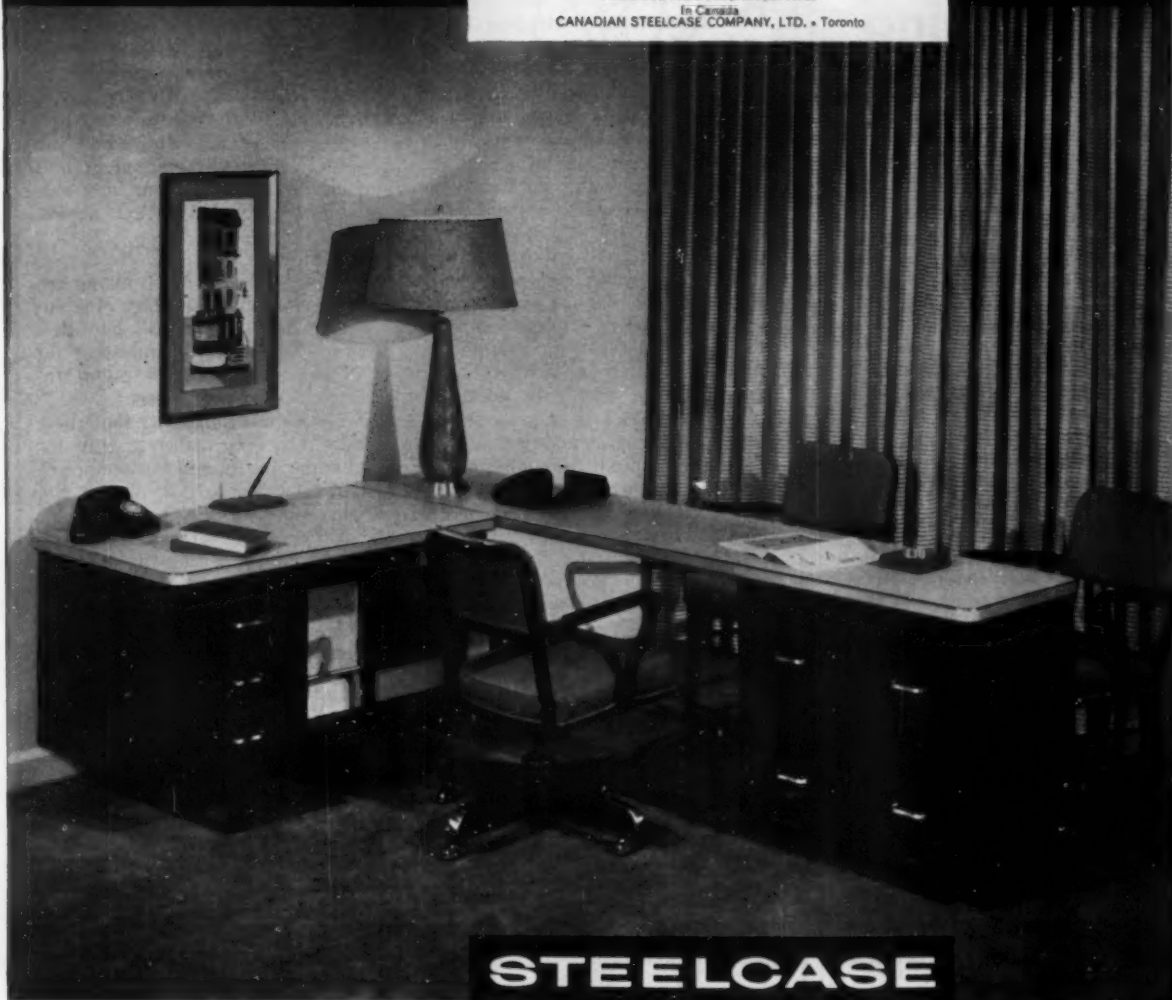
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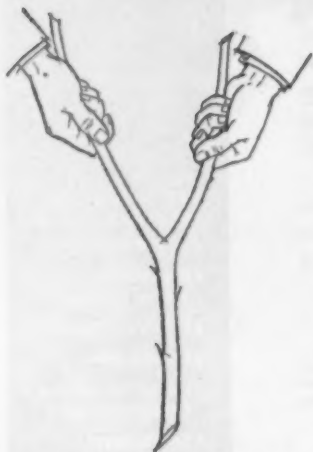
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THE RESEARCH PATTERN

Let's Let Scientists Create

THE YEARS since World War II have witnessed such a tremendous revolution in research that the 20 years from 1945 to 1965 may well go down in history as the period when modern man came to realize its full promise.

One tangible index of the new value accorded to research is, of course, the princely financial support it's been receiving—both from corporations and the federal government (BW—Jan. 12 '56, p. 96). Total expenditures on research and development in the U. S. last year ran somewhere over \$7.9-billion; this year, the full bill should fall in the vicinity of \$8.5-billion when the figures are added up.

BUT, DESPITE the fact that research today is stepping high, wide and handsome, there's a lag in realization of the need for service facilities to underpin this scientific creativity. The average American still clings nostalgically to the picture of a scientist as the rugged individual improvising with sealing wax and bailing wire. That vignette is half a century old. Equally obsolete is the classic notion of the ivory tower—where the researcher, in an acid-stained lab coat, works in a helter-skelter of test tubes and beakers, oblivious to the dust piling up in the corners.

All the same, these ideas are stubbornly held. Talk to the top policy man of the average company about modernizing production equipment—and your arguments will find a receptive audience. He's anxious to manufacture more goods more efficiently and economically and that means using the best equipment.

But talk to the same executive about streamlining his research laboratories—and you'll run into stiff opposition. Except in unusual cases, the businessman isn't attuned to investing heavily in the new tools of research. He doesn't have the same hard facts available as in production problems, and so there isn't the same familiar basis for justifying his judgment. Nearly every top management man has seen—and understands—a factory and what it does. Few can claim comparable understanding about a research laboratory.

Yet, in the end, it costs many corporations a lot of money to prefer production to research when they pass out new facilities. For, through misconceived notions of economy, they are wasting one of America's more critical resources—scientific manpower.

ONE OF THE more shocking situations in the U. S. today is the number of highly trained scientists forced by lack of adequate facilities to curtail their creative output down to a trickle. Instead of free-wheeling through the outer reaches of creativity, many top-rate scientific brains have to spend their time on trivia—such as troubleshooting minor mechanical bugs in lab equipment. Of course, some fine laboratories have been built in recent years. But these are the exceptions. The average researcher, in the average U. S. lab today, is still burdened with clerical and administrative detail, retarded by the need to improvise equipment that could be obtained from any machine shop. Such a waste is deplorable.

THERE has been much public discussion of the shortage of scientists in the U. S. The talk has often turned to ways for industry and government to interest more students in scientific careers.

There's no gainsaying that these needs are very real—not only for economic health and furtherance of national progress, but also for the Free World's very survival.

More science graduates, more minds adequately trained—and then encouraged to advance—are certainly a necessity. However, it will be some years before management's present efforts along these lines produce a satisfactory pool of manpower.

In the meantime, the efficiency of research can be improved immediately—by providing adequate service facilities for the scientists at work today. A top-to-bottom re-examination of research organizations—with an eye to bringing these facilities up to date—is the one sure, swift means for management to ease the current pinch in scientific manpower.

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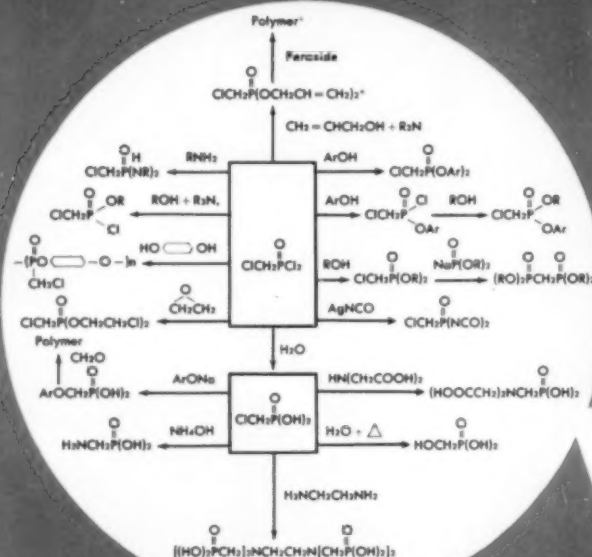
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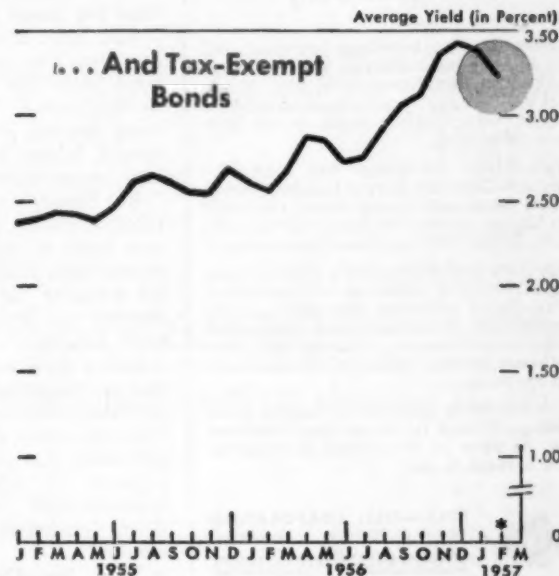
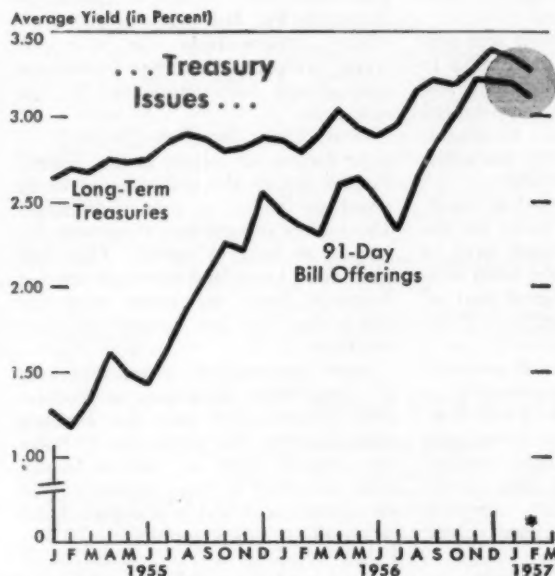
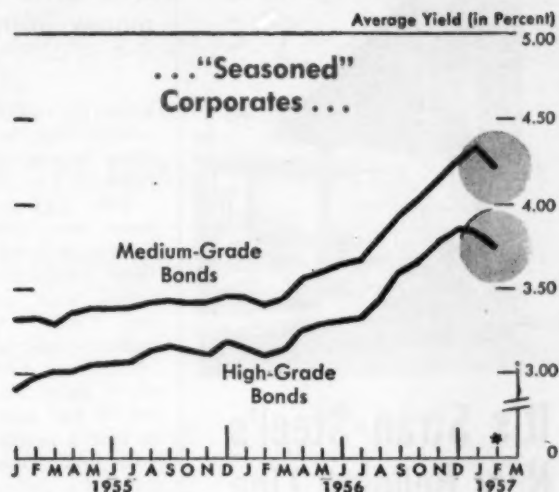
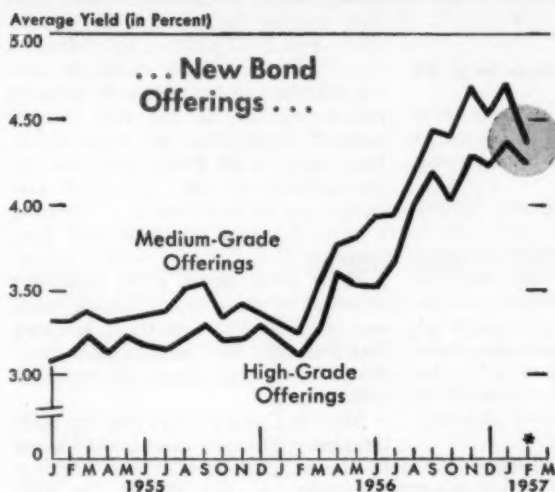
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FINANCE

How Recent Firming Bond Prices Have Cut the Yields of . . .



Data: Moody's Investor Service; Standard & Poor's Corp.

* First Three-Weeks Average

© BUSINESS WEEK

The Cost of Borrowing Eases

Long-term offerings in early 1957 get by with lower yields than they had expected, as prices are firm all around. But the experts split on what comes next.

The charts above outline some happy doing for long-term borrowers. They reveal that terms in the first weeks of 1957 were not nearly so tough as most corporate and municipal fiscal officers had expected when the old year went

out with interest rates still climbing, after more than 12 months of steady ascent.

Take the market in government bonds, accepted as the cornerstone of the national money rate structure. This

week, Treasury 3s, 1955—a bellwether of long-term issues—changed hands at around 94% of par, a yield basis of 3.25%. At the end of 1956, the price had been a shade over 90% of par, the yield basis 3.50%.

• **Tagging Along**—Other sectors of the money market had equally spectacular price recoveries, once the governments started the uptrend.

In corporate new issues, many a bond flotation has brought bids involving



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"... this weakness of the governments hasn't yet spread to the rest of the money market . . ."

STORY starts on p. 89

borrowing costs $\frac{1}{4}$ of 1%—or even more—below what the borrower had expected when he originally made his financing plans.

Two high-grade, long-term utility issues were offered last week on a 4.25% yield basis; earlier in the year, three comparable issues had involved actual yields ranging between 4.40% and 4.50%. And a new issue of medium-grade utility bonds has been offered on a 4.45% basis, where a relatively short time before a yield of 4.62% had been considered necessary to float a similar offering.

• **In All Directions**—Whether this presages a continuing fall in borrowing costs has Wall Street's money market experts squabbling as fiercely as the stock technicians discussing the near-term Big Board price trend.

One smart veteran observer sees definite signs that the long downtrend in bond prices has "come to an end and another trend is developing—toward lower interest rates" (and, of course, toward higher bond prices since the latter move inversely to yields).

But Moody's, which is just as smart, takes a wholly different tack. In the near term, it expects interest rates to resume their climb, with the bond market retracing "at least a good part of the rise . . . [it has enjoyed] . . . from early January."

Still a third money market prophet, just as competent and experienced as the others, veers off in a third direction. This one opines that recent trends suggest chiefly that we have finally "reached a period of stabilization that could continue—with only minor ups-and-downs evidenced—for a good many months."

• **Why the Differences?**—There are excellent reasons for this wide range of opinion in the face of the recent definite strength of prices.

For one thing, the strength of bond prices in early 1957 came as no surprise to a good many experts. They had expected a rally on purely seasonal grounds, though they kept their fingers crossed because of the market's pronounced weakness toward the yearend. After Christmas, corporate borrowers normally start paying off a sizable amount of bank loans. At the same time, the heavy holiday withdrawals from bank accounts begin to move back into the vaults. And, there is a well-recognized "yearend investment demand" that usually lends some buoy-

ancy to bond prices early in the year.

• **Bank Loans Gain**—However, this seasonal honeymoon is already over. Bank loans have started up again after falling harder, in terms of dollars, than they had in the same 1956 months (BW—Feb. 23 '57, p. 40). As Moody's says, "there isn't likely to be any lasting reduction in bank loans to business, before midyear, at any rate, despite seasonal repayments by some industries" what "with March and June tax payments along with . . . plant and equipment expenditures . . . exerting a heavy drain on corporate cash positions. . . ."

Bank loans are a most important factor. The really wise corporate treasurer keeps close tabs on them, knowing that they offer key clues to those basic determinants that shape the trend of interest rates.

• **More to Come**—Worry over the near-term trend of money rates is heightened by the huge amount of new offerings that overhang the market. In early spring, the Treasury is expected to seek around \$2-billion. Dealers in municipals expect 1957 volume to approach—if not to top—last year's record \$6.9-billion underwritings. In corporate bonds, offerings totaling \$1.6-billion have already been announced for the near term.

• **And Then the Fed**—Dwarfing all these factors, of course, is the Federal Reserve Board: What is it going to do about its policy of money restraint? The money experts aren't guessing the answer, at least in public. They just plain don't know, and they have learned reticence from the many times in which the Fed has crossed up their thinking.

Most government issues, especially the long terms, have showed sporadic price weakness ever since the Treasury asked Congress for permission to boost the interest rates on savings bonds; thus indicating to many observers that the government did not expect bond yields to go down appreciably (BW—Feb. 23 '57, p. 38).

This weakness of the governments hasn't yet spread to the rest of the money market, but there are some indications that corporates and municipals have lost some of their early 1957 strength.

• Last week, the Dow-Jones index of municipal bond yields began to move sideways, after six straight weeks of decline.

• There's a steep increase in the undistributed bits of recent municipal issues.

• Most indexes of corporate bond yields were unchanged last week.

• More and more clever investors were coming to think that better buys in new issues may be lying just ahead than any available of late. **END**

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HERBERT A. PAYNE
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J. EDWARD MEYER
President,
Cord Meyer Development
Company

ARTHUR C. BABSON
Vice President,
Babson's Reports, Inc.

ROBERT G. GOELT
Real Estate

Balance sheet of THE HOME INSURANCE COMPANY, December 31, 1956

Admitted Assets

MARKETABLE SECURITIES	
United States Government Bonds	\$ 59,158,935.53
Other Bonds	110,756,999.51
Preferred and Common Stocks	229,841,647.75
	<u>\$399,757,582.79</u>
Cash	26,103,879.06
Investment in The Home Indemnity Company	20,928,856.00
Real Estate	6,842,863.96
Agents' Balances	23,014,578.38
Other Admitted Assets	7,369,748.10
Total	<u>\$484,017,508.29</u>

Liabilities

Reserve for Unearned Premiums	\$187,556,977.00
Reserve for Losses and Loss Expenses	39,826,429.68
Reserve for Taxes Payable	4,725,000.00
Reserve for Reinsurance	2,172,701.49
Dividends Declared	2,000,000.00
Other Liabilities	4,035,917.08
Total	<u>\$240,317,025.25</u>
Capital Stock	20,000,000.00
Surplus	223,700,483.04
Surplus as Regards Policyholders	\$243,700,483.04
Total	<u>\$484,017,508.29</u>

Bonds carried at \$6,102,402.52 amortized value and cash \$82,500.00 in the above balance sheet are deposited as required by law. All securities have been valued in accordance with the requirements of the National Association of Insurance Commissioners. Based on these values the stocks of The Home Insurance Company exceed the book value by \$129,828,361.27 at December 31, 1956.

Balance sheet of THE HOME INDEMNITY COMPANY, December 31, 1956

Admitted Assets

MARKETABLE SECURITIES	
United States Government Bonds	\$ 21,127,691.28
Other Bonds	25,034,306.70
Preferred and Common Stocks	12,589,687.50
	<u>\$ 58,751,685.48</u>
Cash	1,706,007.28
Agents' Balances	6,466,502.94
Other Admitted Assets	1,445,568.49
Total	<u>\$ 68,369,764.19</u>

Liabilities

Reserve for Unearned Premiums	\$ 20,692,483.00
Reserve for Losses and Loss Expenses	24,551,730.00
Reserve for Taxes Payable	928,000.00
Reserve for Reinsurance	258,408.00
Other Liabilities	1,006,430.08
Total	<u>\$ 47,437,051.08</u>
Capital Stock	1,500,000.00
Surplus	19,432,713.11
Surplus as Regards Policyholders	\$ 20,932,713.11
Total	<u>\$ 68,369,764.19</u>

Bonds carried at \$1,090,000.00 amortized value in the above balance sheet are deposited as required by law. All securities have been valued in accordance with the requirements of the National Association of Insurance Commissioners. Based on these values the stocks of The Home Indemnity Company exceed the book value by \$5,115,568.87 at December 31, 1956.

HOME OFFICES: 59 MAIDEN LANE, NEW YORK 8, N. Y.

*This announcement is neither an offer to sell nor a solicitation of an offer to buy these securities.
The offer is made only by the Prospectus.*

\$112,500,000

Trans-Canada Pipe Lines Limited

\$54,166,700

5.85% Subordinated Debentures due 1987, Canadian Series

\$20,833,300

5.60% Subordinated Debentures due 1987, United States Series

3,750,000 Common Shares

(Par value \$1 per share)

The Debentures and the Common Shares are being offered in Canadian Units and in United States Units; each Canadian Unit will consist of a \$100 principal amount Canadian Series Debenture and five Common Shares; each United States Unit will consist of a \$100 principal amount United States Series Debenture and five Common Shares. Three Common Shares will be transferable separately on June 4, 1957 (or the date on which the Company first issues First Mortgage Pipe Line Bonds, whichever is later) and the remaining two Common Shares will be transferable separately at the option of the Company at any time after November 1, 1958 and in any event prior to January 1, 1960.

541,667 Canadian Units are being offered in Canada by Nesbitt, Thomson and Company, Limited, Wood, Gundy & Company Limited, McLeod, Young, Weir & Company Limited and Osler, Hammond & Nanton Limited, as principal Underwriters.

208,333 United States Units are being offered in the United States by a group of United States Underwriters, which includes the undersigned.

Price \$156 per United States Unit

plus accrued interest on the Debentures from January 1, 1957

Copies of the Prospectus may be obtained in any State only from such of the several Underwriters, including the undersigned, as may lawfully offer the securities in such State.

Lehman Brothers

Stone & Webster Securities Corporation

White, Weld & Co.

February 15, 1957.

"CLUES" AD CREATES 600 NEW JOBS

When an established industry pulls out of the town it has been in for years, the results can be critical: Men are thrown out of work, retail revenue dwindles. This happened to Webster, Mass., when a large textile company moved South leaving a vacant plant behind. The obvious solution was to refill the old building with new business, new jobs, new revenue.

Two brief classified ads, run exclusively in BUSINESS WEEK, have resulted in the leasing of the former mill to a greeting card manufacturer. His operation will mean 600 new jobs for Webster . . . and a sounder economy for the whole area.

You will find this week's "Clues" section on page 170

FINANCE BRIEFS

Corporations are paying a premium, literally, for top management help. Last year, U.S. business organizations bought \$3-billion of life insurance on their owners, officers, and key employees, with the organizations themselves listed as beneficiaries. Total of such insurance to date: \$25-billion, according to the Life Insurance Agency Management Assn. In both 1955 and 1956, about 150,000 business life policies were purchased.

Savings and loan associations are mulling a new move in the hot fight for savings among the nation's financial institutions (BW-Feb. 16 '57, p134). The Federal Home Loan Bank Board, regulatory agency for the S&Ls, is considering changing its regulations to allow S&Ls with federal charters to credit dividends quarterly, in states that permit payments on that basis. At present, the federal S&Ls are permitted to pay dividends no oftener than twice a year. If approved, the change would enable them to credit dividends as often as state associations and mutual savings banks.

One of the nation's largest integrated paper and paper products companies, Kimberly-Clark Corp. of Neenah, Wisc., will buy outright another paper-maker, Peter J. Schweitzer, Inc., of New York. Kimberly-Clark will exchange 735,000 shares of its stock—worth about \$30-million at current market prices—for all the capital stock of Schweitzer.

J. Sinclair Armstrong, Securities & Exchange Commission chairman, last week criticized some large non-mutual insurance companies for giving too little information to stockholders. He voiced hope Congress would extend SEC's regulatory powers more fully as a corrective. He also backed new legislation requiring that securities delivered in exchange for assets in mergers be registered under the Securities Act of 1933. Such registration is not now demanded, and it's possible, says Armstrong, for high-pressure salesmen to turn around and market the securities at prices far above their true worth—with the SEC powerless to interfere. Even sophisticated investors have succumbed to these boiler room tactics, he said.

The New York Federal Reserve Bank reports bankers' acceptances in January rose 4.6% to a total of more than \$1-billion, highest level in over 25 years. A major chunk of last month's increase was due to a rise in bills to finance exports.



**DEXTER USES
CAREFULLY-GUARDED KNOW-HOW
to solve tough absorption problems***

From stencils to pressure sensitive tapes—from hospital pads to battery separators—and in use with all kinds of liquids—DEXSTAR Specialty Papers are solving tough saturation problems in hundreds of applications.

Papers are compounded and manufactured to fulfill specific needs—with any desired combination of characteristics such as porosity, dimensional stability, tensile strength, wet or dry strength, thickness, softness, etc. Each formula is developed through carefully guarded manufacturing processes known only to Dexter.

If you have absorption problems—look to DEXSTAR for a custom-made paper that will make your product more successful, more saleable.



*and filtering, laminating, insulating, coating, backing and other such problems, too.

SPECIALTY PAPERS

from Natural, Synthetic
or Glass Fibers

C. H. DEXTER & SONS, Inc. Windsor Locks, Conn.

BUSINESS ABROAD



CARS using Brazilian parts 90% by weight, 95% by value may be GM's next move—after it completes similar truck plan.



TRUCKS have been main focus of Brazil's high pressure vehicle program. International Harvester is readying expansion plans.



UTILITY WAGONS such as this DKW from Vemag, former Studebaker-Packard outlet, are big sellers.



RUSH HOUR in Sao Paulo has Auto-Truck

Foreign auto and parts makers are rushing to Brazil, spurred by clamorous demand and the government's crash program to encourage—and require—on-the-spot production.

Sao Paulo, the nation's business capital, is fast becoming a "Latin American Detroit." Major U. S. and European companies have recently poured \$53.4-million into new equipment. By 1960, truck sales alone should run about \$400-million a year.



familiar look to U.S. drivers. But most cars are ripe for replacement—and many more new ones are needed.

Boom in Brazil Guns Its Motors

"The Latin American Detroit" is what Paulistas like to call São Paulo, Brazil's main industrial city.

There's no denying that the city is living up to its label these days. In the suburbs, along the broad highway from São Paulo to the nearby port of Santos, just about every U.S. and foreign auto-truck maker you have heard of is scurrying to set up shop or expand existing facilities (pictures). In the vanguard are a host of U.S. parts makers and suppliers.

Behind this auto-truck invasion—the biggest ever to hit a Latin American country—is Brazil's pent-up demand for new vehicles. It's true that the streets of São Paulo (picture, above) and other

Brazilian cities are filled to traffic-jam proportions. But most of the trucks and cars are what you would find on a low-price used car lot in the U.S.

• **Replacement Plus**—Brazil will soon have to replace these old cars. Besides that, the country—bigger than the U.S. in size and with a 60-million population—is woefully short of other forms of transportation (except airlines), thus needs additional vehicles. Most important of all, Brazil must step up vehicle output to match the country's fast-growing industrialization.

But more than the local market has lured auto-truck producers to São Paulo. In 1952 the Brazilian government slapped stiff import restrictions on

"knocked down" vehicles and spare parts, to lessen the drain on Brazil's dwindling foreign exchange.

Then, last year, the government laid down the law by saying, in effect: "Either build vehicles locally, out of Brazilian materials and with Brazilian labor, or face all sorts of penalties on imported parts." This ultimatum—or welcoming mat—set 1960 as the deadline when all new vehicles locally produced would be 90% Brazilian by weight, 95% Brazilian by value. To make its decree stick, the government set up Dr. Eros Orosco as auto-truck czar in charge of the Grupo Executivo Indústria Automobilística agency.

• **Phase Two**—So far, the crash pro-

I've got a color-keyed typewriter...and I picked the colors



R.C. Allen

VISOMATIC



**21 COLOR COMBINATIONS
TO HARMONIZE WITH ANY OFFICE**

R. C. Allen leads the way in the modern trend toward more color and bright surroundings to increase office efficiency and raise morale. For 1957, the R. C. Allen Visomatic Typewriters are available in 21 color-keyed combinations and with other new and exclusive R. C. Allen features . . . including a new Hi-Speed touch with only half the typing effort; visible and automatic margins . . . "see it, set it, forget it." Your choice of fabric

or carbon ribbon, type styles and carriage widths—11" to 26". See the new R. C. Allen Visomatic Typewriters . . . with color combinations to make your office more modern, more efficient.

Ask your R. C. Allen dealer to demonstrate the new Visomatic . . . and show you a color combination to match or harmonize with your office decor.



**R. C. ALLEN
10-KEY ADDING MACHINE**

Exclusive Memory and Recall Keys save time and motion, avoid errors by restoring and correcting without re-indexing. Simplifies payroll computations, holds any figure until re-called. Automatic step-over multiplication with positive back-space correction key. Single-double-triple cipher keys. Also R. C. Allen full-keyboard machines, manual or electric, 6 to 13 column capacity.



**R. C. ALLEN
4-TOTAL
CASH REGISTER**

The R. C. Allen Model 355 has 4 departmental totals and a grand total. It issues receipts; records transactions on autographic detail tape; prints "Read" total at any time; does miscellaneous addition. It's the machine-of-many jobs yet costs far less than other machines without these features.

Look first to



660 Front Avenue, N.W., Grand Rapids, Michigan

for every business machine purpose

Typewriters • Adding Machines • Bookkeeping Machines • Cash Registers • Safes and Insulated Files

gram has succeeded. Since last June, U.S. and foreign vehicle producers have poured \$53.4-million into new capital equipment (excluding land and plant construction). With the truck phase of the program in high gear, GEIA this week cranked up for the next phase—development of all-Brazilian auto production.

If all goes well, total investment in equipment for new Brazilian auto-truck production will hit \$200-million by 1960. By that time, annual production will be running at 90,000 trucks and 30,000 cars. For trucks alone, annual sales should amount to about \$400-million—or more than 8% of Brazil's projected gross income.

While auto-truck production, using local materials, is new to Brazil, vehicle assembly from imported parts dates back almost to World War I. Ford began assembling Model-T cars and trucks in a warehouse in 1919. General Motors set up shop in 1924. During the 1930s the big tire makers—Firestone, Good-year, Dunlop, General, and Pirelli (Italian)—began drifting in, followed by battery producers and replacement parts outfits.

Now, egged on by Brazil's economic expansion and the new GEIA decrees, the industry has impressive plans in the works:

Ford has \$16-million allotted for an engine plant foundry and expansion of its stamping plant. Goal: 30,000 trucks a year.

GM has \$10-million slated for a new engine plant. Goal: 29,460 trucks a year.

Willys will spend \$5-million and produce 15,000 Jeeps yearly.

Vemag, a former Studebaker-Packard outlet, will invest \$1-million in new facilities to produce 10,000 DKW Auto Union utility wagons and other types per year.

Volkswagen has \$3.5-million going into future annual production of 9,000 utility wagons.

Mercedes Benz will spend \$8.6-million spent for producing 9,200 diesel trucks annually.

Besides these companies, which have showed their hands, several others are getting set to draw cards. International Harvester may cast its first engine blocks locally by next fall. Over-all, the company is aiming at 6,000 trucks annually, with new investment of around \$6-million. Mack and West Germany's Krupp are also in the running.

• **Parts Makers**—Already, in the Sao Paulo area, there are more than 600 parts makers and suppliers. For pistons, many truck producers are relying on Metal Levy, a big outfit that operates under license from Mahle of West Germany. Fabrica Nacional de Vagoes will produce chassis (and possibly wheel components in a deal with Goodyear and Firestone). Sofunge, now a supplier

for Mercedes, will probably make engine blocks for other producers. (Fabrica Nacional and Sofunge each are spending \$2.7-million on expansion.)

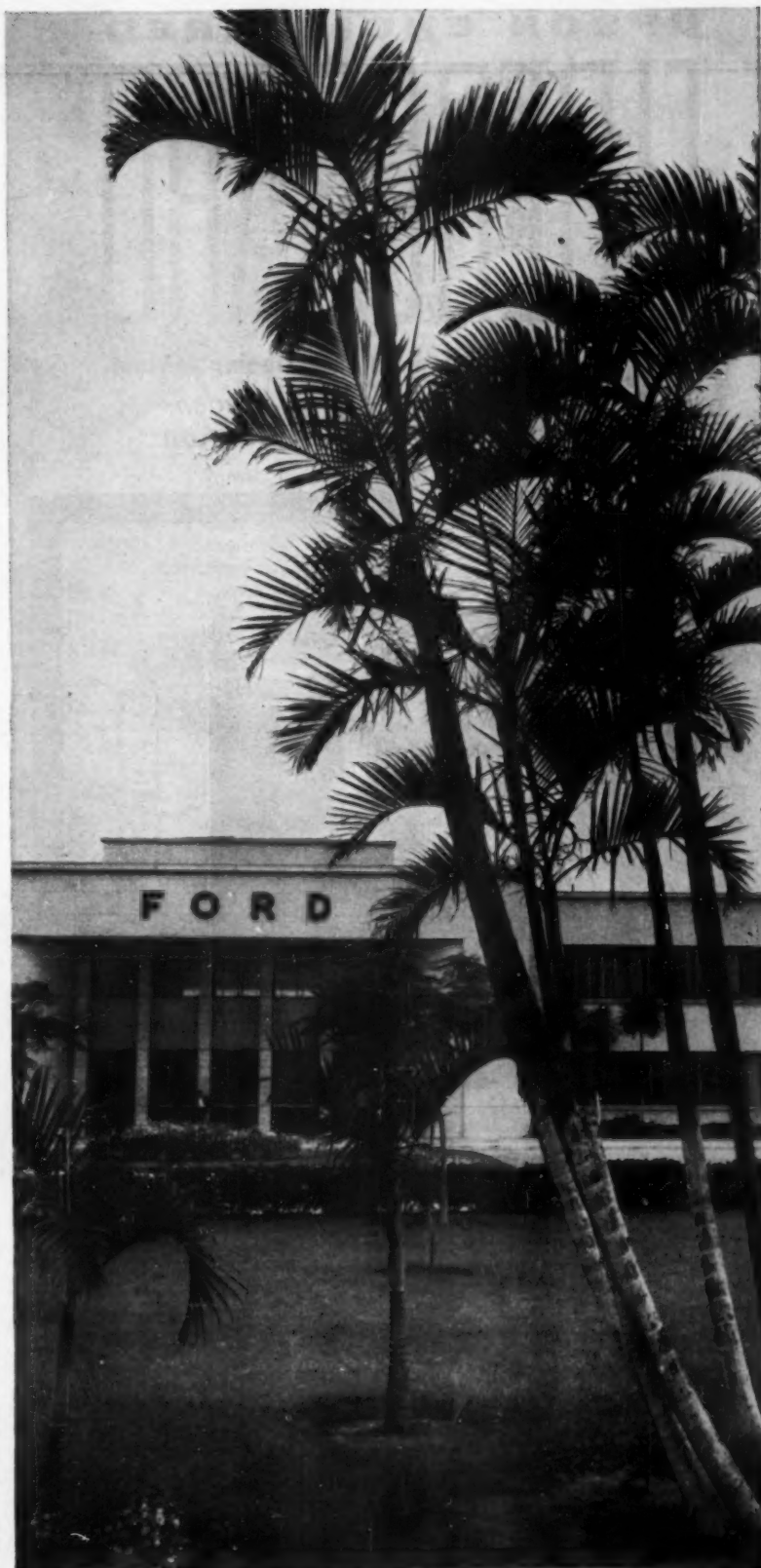
When its factory is finished, Maquinas York will make Republic gears and rear axles. COBRASMA, a Timken licensee, is spending nearly \$10-million for new axle and differential production. COFAP makes Thompson Products cylinder heads, Perfect Circle piston rings, and Monroe stabilizers. Also boosting production—or coming in fresh—are D. L. R. Plasticos do Brasil, under license from Bendix for brake linings; Borg-Warner, which will make clutch assemblies, clutch plates, and gear shifts, and a flock of others.

- **Middlemen**—To help smooth out the supply of parts, the big fellows such as GM and Ford have been playing the role of middleman to put Brazilian companies in touch with U.S. parts makers. For instance, GM in Brazil will line up a local machine shop. Then GM gives the outfit a letter of introduction to GM's brass in the U.S. where company officials will help the Brazilian outfit contact GM's suppliers. Finally, the Brazilian outfit goes back to Sao Paulo with an arrangement to produce U.S.-designed parts under license from U.S. parts makers.

- **Chrysler's Fate**—Not everyone is winning out in the race to get into Brazilian vehicle production. The GEIA agency figures the Brazilian market can stand only so many producers of each type of vehicle, thus O.K.'s new production programs on a first come, first served basis. That's why Chrysler has been left out in the cold. Here's roughly what happened:

GEIA said there was only room for two of the Big Three auto-truck makers. Chrysler, knowing that Ford was ready to submit its plan to GEIA, rushed to snap up Brasmotor, a local company, for making Chrysler products. Chrysler offered Brasmotor \$15-million in deferred payments for the company's plant. Brasmotor, seeing Chrysler's position, held out for cash payment or bigger deferred payments. At this, Chrysler balked. But before it could decide, Ford had its plan in the hopper—and, with GM, won out.

- **Road Blocks**—GEIA's problem isn't just luring in U.S. and foreign producers. All sorts of potential bottlenecks lie ahead. For one thing, the vehicle industry may be short of steel by some 300,000 tons annually in the early 1960s—unless the government's steel program moves faster. Pres. Kubitschek wants to double the country's present steel output of 1.3-million tons, of which nearly half comes from the government-owned mill at Volta Redonda. But local experts doubt whether Brazil can do it. And with alloy steels



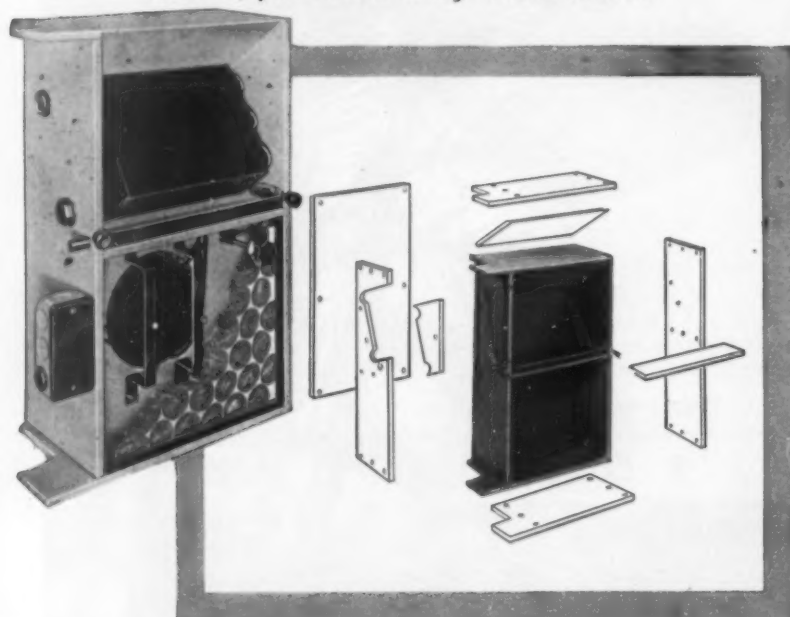
EXPANSION

is the keynote at Ford—as with other vehicle producers. Ford plans a \$16-million investment in trucks.

UPSON ENGINEERED FIBERBOARD

creates a waterproofed air conditioning cabinet

*cuts condensation troubles, deadens
sound, provides easy installation*



The EJAY Remote Heat and Cool Unit, manufactured by EJAY Baseboard Manufacturing Company, Winsted, Conn., shown above, is a typical example of Upson Fiberboard Engineering. Its toughness and resiliency give this cabinet rugged strength. Its superior finishing and sound deadening properties improve product quality. Insulated and waterproofed, this Fiberboard cabinet actually solves condensate troubles usually found in metallic cabinets. Each part was delivered by us ready for production. Punched, beveled and die cut, pieces are easily and quickly assembled, and joined with simple braces and screws. UPSON FIBERBOARD and our specialized engineering and cutting service could be your answer, too. Choice of lengths, widths, thicknesses and surface textures. Send this coupon for our free idea booklet of uses and sample kit.



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Company _____			
Position _____			
Address _____	Street _____	City _____	State _____



WILLYS is putting \$5-million into expanding Jeep output to 15,000 yearly.

already short, Brazil may have to import alloys for its vehicle program—and thus partly defeat its goal of saving foreign exchange.

Then, there's a possibility that the lack of good roads may put a crimp on vehicle sales. Kubitschek is trying to meet this by outlining a government program for building 1,865 mi. of new paved roads and 3,729 mi. of unpaved roads. Another hitch may be rubber for tires. Though Brazil is the original home of rubber, it now imports practically all it uses from Malaya. But Firestone and Goodyear have local plantation experiments under way. And Firestone is considering local synthetic-rubber production.

• **Fuel Trouble**—Biggest problem—and paradox—is petroleum. GEIA thinks that by 1963, its vehicle program will be saving an estimated \$171-million yearly in foreign exchange. Yet unless petrobras, the government-run oil company, speeds development within Brazil, most of GEIA's supposed gain in foreign exchange will go down the drain for continued high oil imports.

These sore spots aren't slowing the auto-truck boom a bit. Just last week Budd Co. told GEIA that it is planning to move in with heavy presses to make auto and truck bodies. Now that GEIA has opened the spigot for filling up the car end of its program, Ford and Volkswagen have privately given their go-ahead for investing in production of nearly-all-Brazilian autos. American Motors and Italy's Alpha Romeo have also shown keen interest.

What really has flabbergasted U.S. producers, is the wham-bang speed with which Orosco, GEIA's head, has pushed through the program. In most Latin American countries, bureaucracy blunts the sharp edge of any new plan for industry. In Brazil itself, newcomers have often run smack into financial and regulatory red tape. But about Orosco one admirer says: "He's been given semi-divine powers, and when he says O.K., things really zip." **END**

*if it can be pushed
through a pipe . . .*



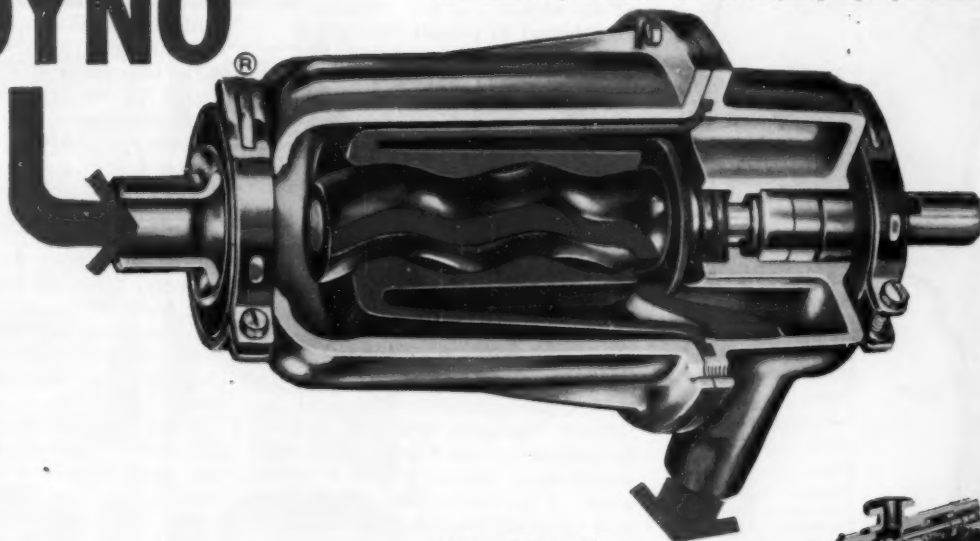
*you can pump
it with a*

MOYNO

No doubt, in your plant, certain materials are being moved by hand expensively that could be pumped economically by a Moyno. They pump anything that can be forced through a pipe . . . from very thin liquids to heavy, non-pourable abrasive substances . . . even materials containing suspended particles! As the illustration shows, progressing cavities, formed by the helical screw-like rotor turning inside the double-helical stator, move smoothly along, carrying the material with them . . . the cavities don't squeeze the substance . . . can't stick or gum up. Moyno pumps will not cause churning, foaming . . . won't aerate or vapor-lock!

Moynos are adaptable for a wide range of substances simply by modifying the materials the pumping elements are made of. They are available to pull up to 29" of vacuum while discharging under pressure. If you have a pumping problem, chances are a Moyno will solve it!

Write today, for Bulletin 50-BZ or look in the yellow pages for name of your nearest R & M Moyno pump representative.



Industrial type Moyno . . .
available to 500 gpm, pres-
sures to 1000 psi.



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Motors



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Central Americans Draw Closer



● The five republics between Panama and Mexico have agreed to establish a common trade zone, tied together by the new Interamerican Highway.

● If their legislatures approve the plan, it will bring new opportunity to American businessmen.

● And for the long pull, the five countries have even grander hopes of economic development.

Officials of the five Central American republics took one more step toward a century-old dream in Guatemala City last week: They agreed on a multilateral trade treaty that eventually will turn the area between Panama (not officially a Central American country) and Mexico into a common trading area (map).

This news isn't only of importance to Costa Ricans, Guatemalans, Hondurans, Nicaraguans, and Salvadoreans. It also offers opportunities for American businessmen.

• **Ready**—Already one U.S. manufacturer—General Tire & Rubber Co.—is set to take advantage of the new trade zone. It has set up tire manufacturing facilities in Guatemala to sell to the whole region. Other opportunities seem bound to present themselves.

The treaty will have to be ratified by the five countries' legislative assemblies.

• **Long Time Coming**—The ideal of Central American unity—political and economic—has been around for a long time. After the five Central American states fought their way free of Spain in 1821, they were held together in a federation for 16 years.

Although they are close to one another geographically, the Central American countries differ in terrain. Social and racial differences have also kept them apart. (Costa Rica, for example, is populated almost wholly of European stock; Guatemala, almost completely by Indian.) Transport difficulties add to the problem as one Guatemalan textile manufacturer pointed out to **BUSINESS WEEK**. If he used coastal shipping to send his product to Costa Rica, he paid the same import duties as American or European exporters.

• **Artery**—But things have changed. The big difference is the Interamerican Highway (map). Now products can move from one Central American state to another by cheap and fast truck transportation.

The road is now an all-weather, surfaced highway between Guatemala City and San Jose, Costa Rica, via El Salvador, Honduras, and Nicaragua.

The highway, like integration and

union, was another dream. During World War II there was a crash program to build a highway that would connect the U.S. with Panama through Mexico and Central America. The war ended before it got well under way, and the military changed its mind.

In 1955, Vice-Pres. Richard Nixon toured the area. When he returned to Washington, he swung the Administration into line behind continuing the project, and the present program calls for its completion in the next three years. The ultimate cost—met two-thirds by the U.S. and one-third by the countries through which it goes—is likely to be well over \$100-million.

• **Payoff**—The economies of Central America—tied to bananas and coffee until now—are already feeling its effects. The Salvadoreans—the biggest boosters of the integration idea, along with the United Nations Economic Commission for Latin America, sitting in Mexico—have already profited.

More heavily industrialized than any other Central American state, they have negotiated a series of tariff agreements with each of the other countries permitting a relatively free exchange of products. The road and these treaties have boosted their export-import trade with Guatemala and Nicaragua 10 times above prewar averages, even more with Honduras, five times prewar with Costa Rica.

What the Salvadoreans have done will now be translated to all the countries through the new treaty. The five countries also have other big plans—which Washington observers are inclined to regard skeptically—to establish "regional industries." For example, with the aid of United Nations technicians, they have established that the area needs a pulp and paper mill and that Honduras—with large timber reserves—is the best place for it. They plan to ask each of the governments, or private investors in each of the countries, to back the project. While there is heavy sentiment against foreign ownership, they probably will ask foreign investors to come in, too. **END**



THE MOST COMPLETE LINE OF LEADED STEELS

Copperweld offers the most complete line of leaded alloy and carbon steels available today. Leaded steels give you faster feeds and speeds, saving of tool costs, and finer finishes that often eliminate a final machining operation. Here's a partial list of some of the most popular leaded steels available through Copperweld:

Ledloy®A	A-4142	A-5140
C-1040	A-4145	A-5150
C-1041	A-4147	A-8620
C-1045	A-4150	A-8622
C-1050	A-4620	A-8640
C-1137	A-4640	A-8642
C-1141	A-4720	A-8645
C-1146	A-5046	A-8647
C-1153	A-5117	A-8650
A-4140	A-5120	E-52100

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STEEL COMPANY**

Steel Division • Warren, Ohio

EXPORT: Copperweld Steel International Co.
225 Broadway, New York 7, N.Y.

Speeds materials handling

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FROZEN VEGETABLES—

Bulk vegetables are packed in Union Ice Bags—then conveyed to freezing room and stored to await canning. Bulk packaging in these bags is inexpensive, clean, adaptable to mechanization, and gives complete protection.



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Set quantities of cups and covers are packaged in paper bags by one of largest paper cup manufacturers. Filled bags are resale items, sold across the counter in retail stores.



WAX—

Hot wax is poured into open paper bags sitting in water-filled tray. Water cools and solidifies the wax, which is then shipped to shoe manufacturers. Users strip paper off wax, heat to liquefy, use as a sewing needle lubricant and leather softener.

VERSATILE PAPER BAGS can save money, provide more efficient packaging, handling, for your product. SEND FOR USEFUL BOOKLET CP-11.



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**UNION BAG-
CAMP PAPER
CORPORATION**

233 Broadway, New York 7, N. Y.

ShockDownUnder

Admiral of Australia, early-bird TV set maker and now No. 1, didn't get the worm without a battle.

As a somewhat underdeveloped country, Australia likes U.S. business. In fact, it openly encourages U.S. companies to set up plants there. That's what Admiral Corp. did last year. It opened a plant near Sydney, primarily to produce TV sets for the Australian market.

Then Admiral got the shock of its life. Competitors and politicians ganged up on the company in a campaign to put it out of business. Today, with the dust settled and bad feelings repaired, Admiral is Australia's No. 1 TV set producer. But it's still wondering how it all happened.

• **Inspiration**—Last year the Australian government okayed the introduction of TV. Admiral International Corp., which handles the parent company's overseas operations, thought the idea of a new subsidiary Down Under sounded just fine. It had already started subsidiaries in Canada, Mexico, Italy, and Brazil—and licensed companies in Argentina and the Philippines.

Admiral carefully teamed up with an Australian company, General Industries, Ltd., a leader in the appliance field. In organizing Admiral of Australia, Ltd., Admiral went in on a 50-50 basis, also agreed to put Australians in charge. This looked like the textbook method for getting along in a foreign country.

• **Precedents**—But Admiral overlooked one point: Virtually no new major electronics manufacturer has succeeded in entering the Australian market over the past 20 years. Admiral soon found out some of the reasons why.

The "established" radio and electronics companies—as it turned out—had already decided they would make 17-in. TV sets. Likewise, the Australian Broadcasting Control Board had already set up certain standards for transmission and reception. But Admiral, drawing on its U.S. experience, thought 21-in. sets would be the big seller, also settled on an "intermediate frequency" for reception—different from that selected by the Canberra government but achieving the same technical results. The company began producing the larger sets.

• **Early Bird**—Admiral became the first TV set manufacturer to move into quantity production—even before the four commercial and two government TV stations in Sydney and Melbourne were on the air. This early production gave Admiral a lead in retail outlets,

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all I get is government interference"

which in Australia shun exclusive distributorships.

Finally, Admiral stuck its neck out farther by using printed circuits in its TV sets. This technique, which lowers production costs, is an up-to-date feature of set manufacturing here. But use of printed circuits was what finally set everyone to howling in Australia.

• **Hue and Cry**—Members of Parliament who hardly knew the difference between a transistor and a vacuum tube rose up to deliver denunciations of Admiral's 21-in. sets. Government ministers, egged on by purebred Australian TV makers, gave the impression Admiral was trying to dump a second-rate product on the Australian market.

Most of the Australian press (cartoon, above) defended Admiral. But all through last fall the campaign continued. And Admiral's Chicago executives were making weekly trips back and forth to Sydney to help the new subsidiary survive the onslaught.

• **Counterattack**—Admiral's first counter move was to issue an unconditional guarantee on the sets. One outcome of this was to force competitors to make similar guarantees.

Next, it asked the government to make a full-scale, open inquiry. The inquiry found Admiral not guilty. But meanwhile the Postmaster-General withdrew import licenses for Admiral components. Finally, pressure from the public and press forced the government to reverse this decision. Said one newspaper: "Thank heavens for a bit of sanity in this ludicrous mess."

Then things quieted down for Admiral. The 450 workers at its plant are now busy producing both 21-in. and 24-in. TV sets (as well as other appliances). Admiral's 22 competitors are just beginning to produce 21-in. sets. And Admiral already has plans for expanding its Sydney plant.

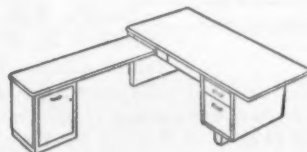
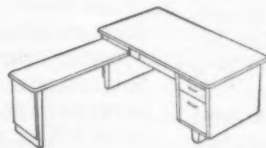
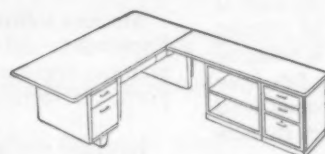
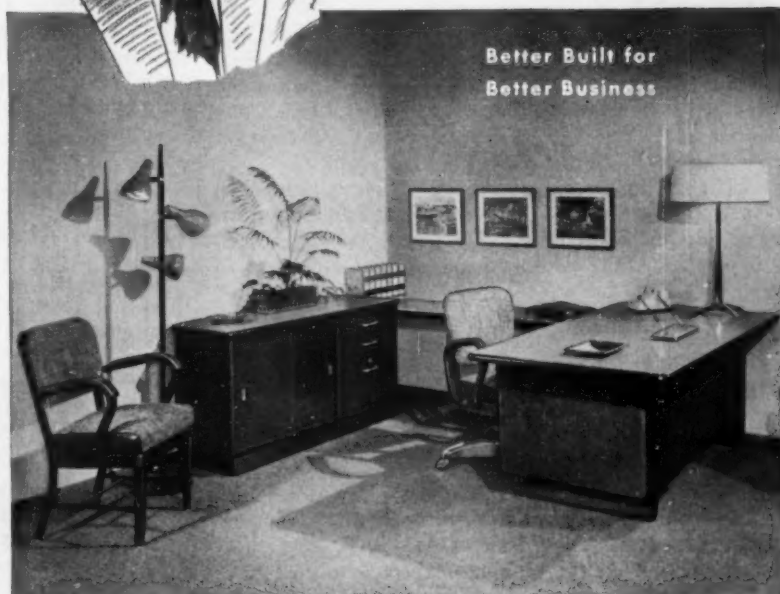
• **Advantage**—Today, Admiral's Chicago headquarters would just as soon forget the Australian squabble. Yet, though Admiral poured huge amounts into the defense of its subsidiary, the publicity has—in the long run—helped make it the leader in TV set sales. **END**



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In Business Abroad

Mexico Is Latest to Offer Tax Haven For Earnings Abroad by U. S. Companies

Now Mexico is trying to get in on the tax haven act that already has been widely used in Panama, Liberia, and other countries to lure U.S. corporations (BW—Oct. 1'55, p122). The Mexican government has let it be known that it is willing to discuss the incorporation of "sanctuary corporations" to serve as depositories for foreign earnings of U.S. companies.

Hugo Margain, director of Mexico's Income Tax Commission, made it plain, however, that Mexico's willingness to allow such companies to be organized below the Rio Grande depends on their acceptability to U.S. tax officials. In the past, Mexico City and Washington have cooperated closely on mutual tax problems.

Just what form the corporations would take remains to be worked out. None has been formed since Margain issued his invitation in a recent article for the official publication of the U.S. Chamber of Commerce in Mexico.

U. S. Picks Architects for Embassy In Mexico City; Cost is Still Uncertain

Southwestern Architects & Engineers in Austin and Beaumont, Tex., has been assigned to draw up plans for a new U.S. embassy in Mexico City.

Construction on the building—expected to cost from between \$1½-million to \$3½-million—is not expected to get under way until 1958. The speculation on cost at this point runs such a wide gamut because of Mexico City's peculiar building problems. The city is built on the bed of an old volcanic lake and as water has been pumped from the subsoil over the years the ground level has fallen and continues to drop. This creates tremendous foundation problems.

Two Mexican architects, familiar with this problem, have been called in as consultants. And a final decision as to whether the building will be a multi-stories rectangle rising evenly on the site or whether it will be a lone edifice with a tower depends on these surveys.

The building will be located at the corner of Mexico City's beautiful Paseo de la Reforma and Calle Danubio, and will include an auditorium, employees' cafeteria, and conference rooms large enough for Inter-American meetings.

India's \$200-Million IMF Operation Laid to Expected Ceiling on U. S. Aid

India's recourse to a \$200-million dollar withdrawal from the International Monetary Fund (BW—Feb. 23'57, p147) to tide the country over its present balance of

payments difficulties is being interpreted as a bad omen in Bombay. This relatively costly source of finance, Indian observers say, means that early in the Second Five Year Plan the government has abandoned hope of maximum U.S. aid. India is momentarily expecting confirmation that this year's \$55-million in U.S. aid will set the pattern for the five years of the plan, that its hoped-for \$100-million annually won't be forthcoming.

Even the election ballyhoo hasn't eclipsed the fact that India's planners are now busily engaged in paring down the original \$15-billion plan (BW—Apr. 7'56, p119). Cuts so far have trimmed next year's spending to \$2-billion; of this the government so far has found financing for only \$1.5-billion.

A limit on deficit financing has been set at \$500-million for the year. Total government income from taxation and other sources is expected to be \$920-million. An additional \$100-million or so will have to be found in new taxation—which best explains why consideration of the budget has been postponed until May, after the elections.

Business Abroad Briefs

British orders: Fenosa, a Spanish power company, has ordered more than \$7-million worth of hydroelectric equipment with British Thomson-Houston Co., Ltd. . . . The West German government has ordered 68 Hawker Sea Hawk fighters and spares, \$14-million worth. . . . An Iranian company—usually a difficult market for British cars—has given a single order for Morris autos and trucks amounting to more than \$2-million.

Another transatlantic telephone cable may be on the way. Traffic has more than doubled in both directions since the first \$42-million cable was completed in October.

Mexican sulfur entered a new era last week: Compania Exploradora del Istmo, SA, an affiliate of Texas Gulf Sulphur, began production at its Isthmus of Tehuantepec plant. It represents an investment of \$10-million.

Japanese sewing machines will be produced in Brazil by a new joint Japanese-Brazilian company organized in Sao Paulo. . . . Protectionist sentiment in Japan has been mollified toward Singer Sewing Machine's new operation that opened there recently. The reason: Singer's prices are 20% higher than the product of Japanese-owned companies and the quantity manufactured will be small.

Brazil's first open-end investment fund is being launched by the Rockefeller International Basic Economic Corp. It will offer small Brazilian investors a chance to get at domestic investments securely tied to some U.S. blue-chip holdings, provide a new source of capital for Brazilian expansion.

Immigrant-railroad swap: Paraguay and Japan will talk officially soon about a plan to allow 100,000 Japanese to settle in the South American country in exchange for Tokyo's building a \$20-million railroad connecting Asuncion, the capital, and the Brazilian frontier.

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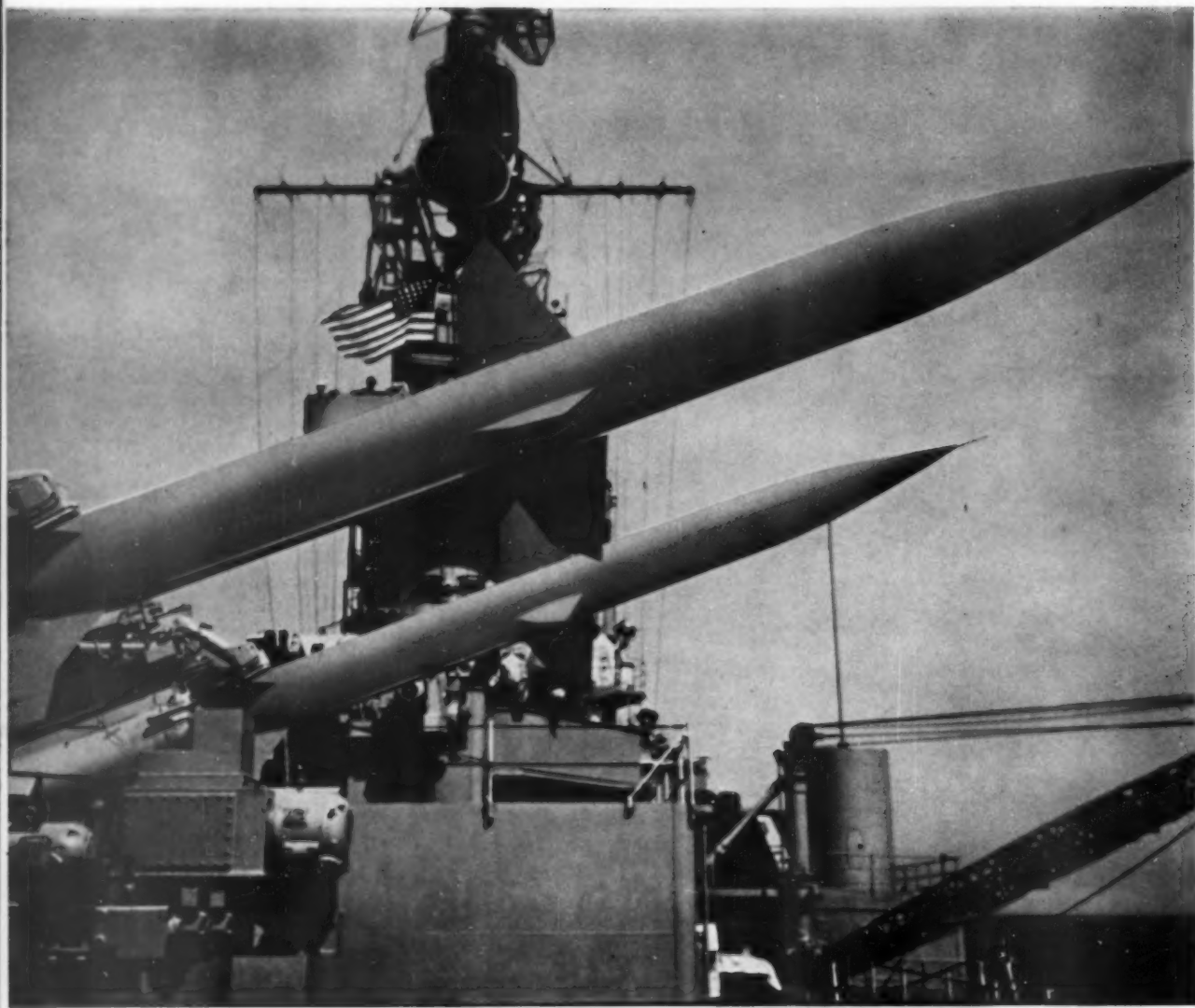
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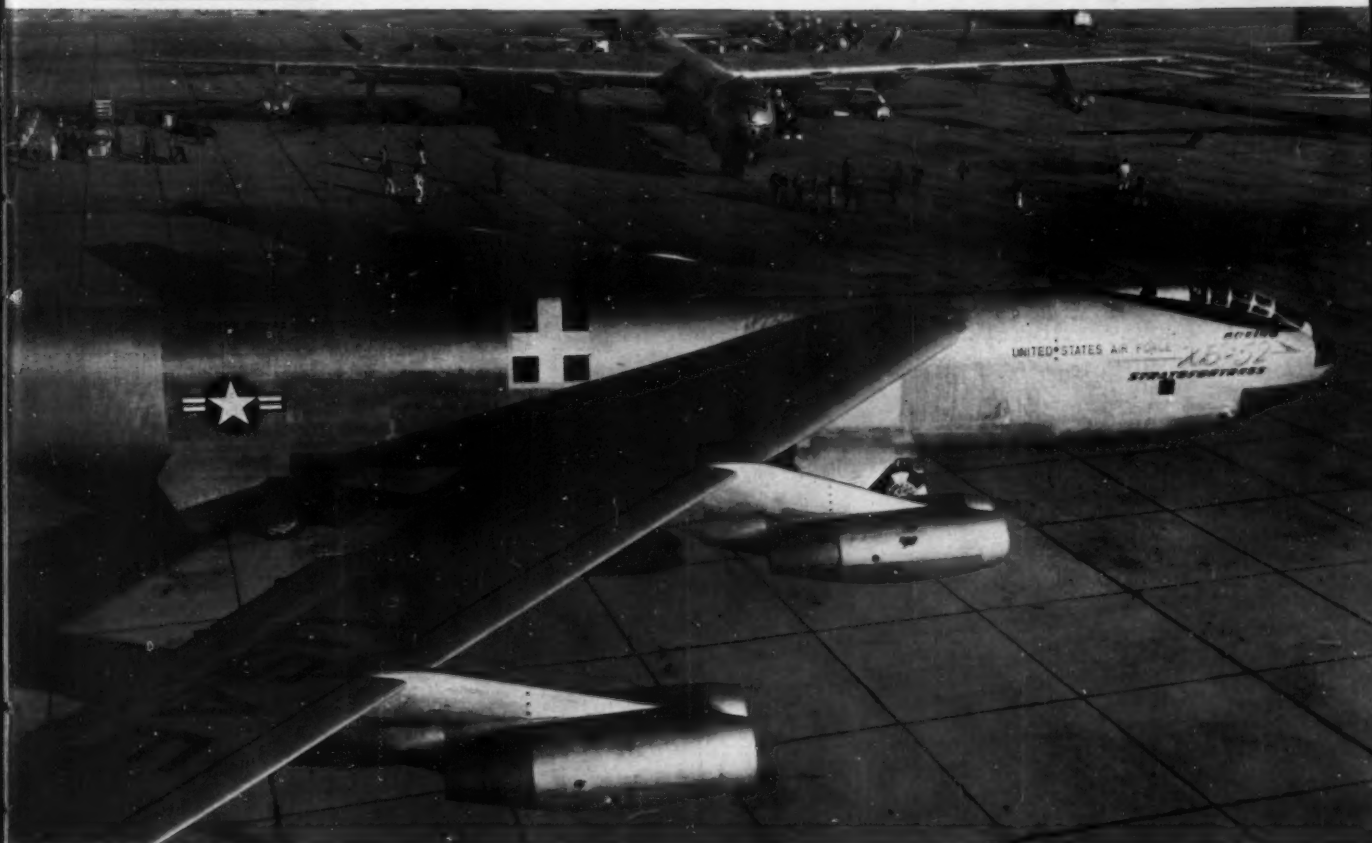
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The New U. S. Fighting

Year by year, peace or war, the cost of the nation's military establishment keeps rising. And the basic reason is that in an atomic, electronic, air-borne world, the art of fighting is going through revolutionary changes. Here, then, is what a modern military force is like — how it is organized, the weapons it uses, the tactics it relies on for a new kind of war.



AIR FORCE intercontinental bomber, the Boeing B-52, taxis past a Convair B-36 at the end of its first cross-country flight.

NAVY Convair Terrier antiaircraft guided missiles mounted on deck of cruisers patrol the seas.

ARMY helicopter hovers over paratroopers as they hook a 106-mm. recoilless rifle to a carrying cable.

Machine

FOR THE PAST FOUR YEARS, the U. S. has spent an average \$36.3-billion annually for the largest peacetime military force in its history. That's close to 10% of the gross national product, and well over half the federal budget.

All the while, military science has been going through a technological upheaval. Never in so brief a time have the armed forces become equipped with so many fantastic new weapons:

- Single bombs, one of which is more powerful than all the explosives fired or dropped by the U. S. in World War II.
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Special Report starts on p. 106

the most advanced guns and manned planes.

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- Newfangled electronic gadgets for control and guidance.
- Still in the works is an arsenal of more nightmarish stuff: ocean-spanning ballistic missiles, long-range air defense guided missiles, nuclear cruisers and aircraft carriers.

• **Revolution in Warfare**—Against this backdrop of heavy peacetime defense costs and the rapid introduction of a fresh generation of weapons, a new kind of U. S. fighting machine is shaping up—ready to fight a new type of war with new tactics and strategy. For the most part, its make-up reflects the thinking of the Joint Chiefs of Staff, the nation's five top-ranking military leaders (cover, page 100). But because of economic and political circumstances, it also reflects to a greater degree than ever the ideas of the nation's civilian leadership.

The titanic destructive power wrapped up in a nuclear weapon has revolutionized the nature of warfare. World War II-type operations—massed paratroop drops, amphibious beachhead landings, infantry drives, and heavy formations of planes and ships—have become suicidal. The accent is now on smaller, self-contained combat units with atomic firepower on land and smaller dispersed formations of planes and ships.

In line with these tactical changes, U. S. armed strength has become concentrated in strategic bombers, missiles, nuclear explosives, and other new arms producing more bang with fewer men. The role of ground troops and conventional weapons—as measured by military budget allocations—has been reduced (BW—Aug. 18 '56, p. 149).

• **Storm Center**—These fast-moving developments have stirred up storms of controversy over various aspects of the defense program. The three services compete furiously over changing roles and missions. Democratic congressmen—plus nonpolitical military experts—charge that the Eisenhower Administration's tight fiscal policy holds back military efforts (BW—Feb. 2 '57, p. 32); and so on.

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what all these controversies are about, you have to realize some of the key assumptions upon which the whole \$36-billion a year structure is built:

- Though military men are running the show, the big decisions—how big a military force to have, what kind of a force, whether to fight, where to fight, what weapons to use—still rest with the President and his civilian advisers.

- U.S. military power is being fashioned up to fight both long wars and short wars, both nuclear conflicts

and non-nuclear “brush fires.” But the stress is on forces that can retaliate quickly and decisively in case of nuclear attack on the U. S.

- Over-all, U. S. military power—including that of its allies—is probably on a par with Soviet strength. The Russians have more powerful ground forces and a bigger submarine fleet; we have a stronger strategic Air Force right now. However, in an atomic war, it’s quality that counts.

- Nuclear capability does not rest exclusively with the Strategic Air Com-

mand. If the situation requires it, Army division will be ready to fire tactical A-weapons. Still, the destructive power of such a weapon is overwhelming: The smallest A-weapon today probably has one-fourth the blast of the first A-bomb equal, say, to 5,000 tons of TNT.

- Guided missiles are taking over many missions from piloted planes and conventional guns. But the era of push-button warfare is a long way off. Manned aircraft will be decisive—especially in strategic bombing—for at least another decade.

I. What Kind of War Has the U.S. Prepared For?

The major argument over strategy and tactics revolves around the charge that the stress on air-atomic power leaves this country badly prepared to fight small local wars. As one observer puts the criticism: U.S. strategy is based on bombs that are too big and armies that are too small—the implication being the Soviet Union is ready with both big bombs and big armies.

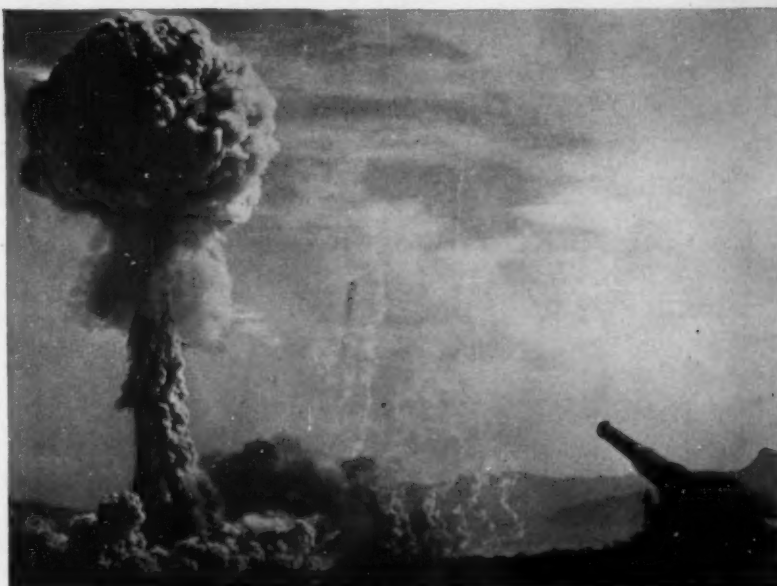
This week, the argument is going on in the House Appropriations Committee, behind closed doors. The congressmen and defense chiefs are going into the details of the \$38-billion fiscal 1958 Defense Dept. budget. The new budget, which outlines a hike of \$2-billion over current expenditures and points to annual boosts of at least \$1-billion in subsequent years, is described by Pentagon officials as “crucial.”

Its special significance is tied to these factors: (1) It provides funds for the first year in which many of the super-duper weapons will become available in quantity; and (2) its basis is the so-called “second new look”—a reappraisal of U.S. defense strategy that projects military requirements three years ahead.

- **Wilson’s Stand**—In January, Defense Secy. Charles E. Wilson reported on the results of the second new look to the House Armed Services Committee. He said the Joint Chiefs of Staff have concluded that “our basic military programs were generally valid and that, so far as they could forecast . . . would continue to be valid through the period of 1958-60.”

Wilson means continuing emphasis on air-atomic power to deter Russian aggression. Translated into budget terms, the decision will keep up heavy spending on strategic air forces and other nuclear units, and hold back the increases sought by the Army for troop airlift capacity and other standard arms.

- **Big Question**—Amid the debate over military policy, one question looms most ominously: What kind of war are present U.S. military forces prepared to fight? The question takes on added importance with growing U.S. overseas commitments—notably under the



ATOMIC CANNON TEST shows that the Army is getting ready to fight on atomic battlefields. However, nuclear weapons aren't replacing conventional.

Eisenhower doctrine in the Middle East and in Western Europe, where Great Britain and other NATO members are eager to trim their forces.

Critics—such as Former Secy. of State Dean Acheson—argue that emphasis on strategic airpower and heavy cutbacks in ground forces (over 500,000 since Korea) have equipped the U.S. to fight only a total nuclear war, have made us almost impotent to face up to the nibbling types of aggression in which the Soviets are most likely to indulge.

- **“Routine”**—Lately, the Administration has been emphasizing that the U.S. is ready to use atomic weapons to meet Communist aggression anywhere. Pres. Eisenhower, for instance, told a recent press conference, “We regard these smaller [atomic] weapons as an almost routine part of our equipment nowadays.”

The stress here is on tactical nuclear weapons—small atomic bombs, artillery shells, and battlefield missile warheads.

However, the division between tactical and strategic weapons may be hard to define, some nuclear experts claim. Beside* there is considerable criticism that small atomic weapons are still largely in the “development stage.”

- **Dynamite**—Privately, military men say they have developed tactical A-weapons for precise firing or bombing with explosive yields just a minute fraction of megaton strategic H-bombs. Exact figures on the power of small A-weapons are secret. But even if the explosive yield can be brought down to, say, 1,000 tons of TNT, you already have a weapon about 160 times more destructive than the biggest conventional World War II blockbuster—plus the immeasurable horrors of radiation.

Many responsible observers fear that once you start tossing warheads of such magnitude about—even with the strictist discrimination—you will inevitably have a general nuclear holocaust on your hands. (Turn to next page.)

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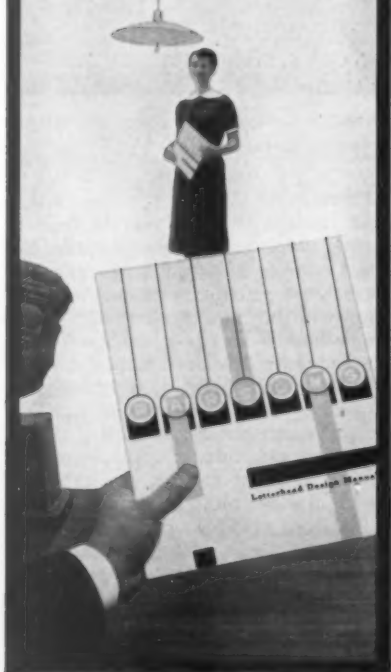
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JOINT CHIEFS OF STAFF are (left to right) Adm. Arleigh A. Burke, Chief of Naval Operations; Gen. Nathan F. Twining, Air Force Chief of Staff; Adm. Arthur W. Radford, chairman of the staff; Gen. Maxwell D. Taylor, Army Chief of Staff; and Gen. Randolph M. Pate, Marine Corps Commandant. The group's make-up will be reshuffled this summer, when their two-year terms expire. According to Pentagon gossip, Twining is expected to replace Radford, while Burke will be reappointed to another term. Gen. Lauris Norstad, Supreme Allied Commander in Europe, and Gen. Earle E. Partridge, who commands the Continental Air Defense Command, are talked up as the future Air Force Chief of Staff. Gen. Lyman L. Lemnitzer, Commander of U.S. Forces in the Far East, is most likely successor to Taylor. At least three Marine generals figure in the speculation over who will replace Pate.

II. How Joint Chiefs See the Problem

As the principal advisers to the President, the National Security Council, and the Secretary of Defense, the Joint Chiefs of Staff are most responsible for the answer to the troublesome question over the kind of war to prepare for.

The dilemma is pointed up by one high-level Defense Dept. official: "Any one who tells you what kind of war the next war will be is an ass."

It cannot be said, however, that the JCS have had the temerity to lay down such an edict. Instead, they have drafted a series of war plans geared to the alternative threats of general nuclear wars, nuclear conflicts confined to local areas, and non-nuclear "brush fire"-type action—plus combinations of each. The prospect of another lengthy general war in which nuclear weapons would not be used has been rejected.

The key elements in JCS' plans are:

- Though the threat of a limited war is undeniable, the major impact of a future general war would come right at the start. The theory is that in such an event, the decisive action would be achieved with forces in being with no chance for a mobilization.

- The U.S. now has sufficient military strength—that is, ground troops—to handle a brush fire type of war.

Any bigger requirement for ground forces would mean the limited war would have become a general conflict in which strategic airpower would be the decisive force.

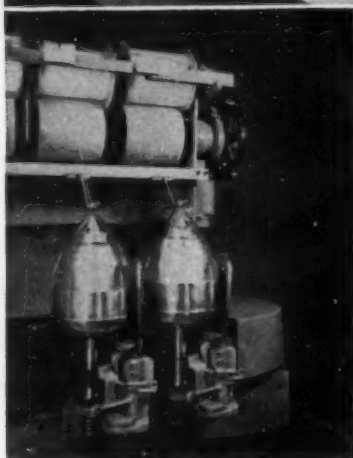
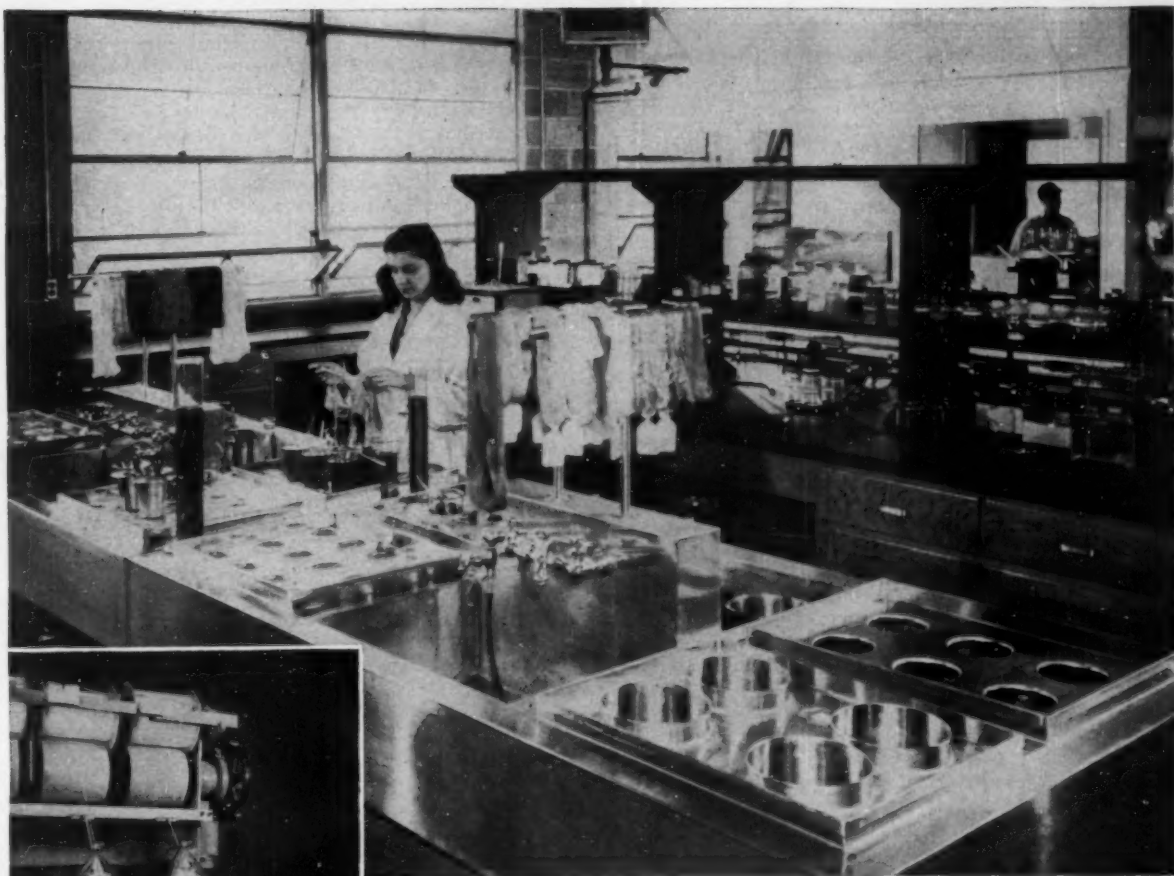
- The risk of using tactical nuclear weapons in a limited war must be taken in order to prevent it from growing into a big war.

- **Master Scheme**—These plans brought on by rapid developments in weapons technology have brought shifts in traditional military tactics, strategy, and organization.

Most obvious shift is in the establishment of war plans. The old tidy military world of neatly defined roles and missions where the Air Force fought its war in the air, the Navy on the sea, and the Army on the ground—and where each service set up its own strategic plan all by itself—has vanished.

Now there are joint war plans—doctrines and strategy of each service wedded in one master scheme to face up to the threats of various kinds and sizes of war. However, it wasn't until 18 months ago that the first joint plan, the so-called Joint Mid-Range Strategic Plan (BW—Dec. 3'55, p30), was formally adopted.

At the same time, the trend is toward



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unified tactical commands both in the U.S.—the Continental Air Defense Command, for example—and overseas. The objective is to give unified commanders more control over their component forces. The concept of tightened authority is considered essential in combat zones whose size has magnified because of atomic capabilities.

- **Slow to Come**—The unification trend

has not progressed much at the Pentagon since the organization of the Defense Dept. in 1947. Despite pleas from Air Force leaders and many in Congress, a complete merger of the armed forces is still unlikely. Both Eisenhower and Wilson have turned thumbs down on such proposals.

In the individual services, the tactical, strategic, and organizational

changes have been slow in coming. As one Pentagon expert says: "You don't organize around a new weapon until you really understand it."

Meantime, mathematical computers—visualizing the performance characteristics of weapons still on the drawing boards and projecting ahead strategic situations—are helping to lay out military tactics of the future.

The Air Force's Rise to Supremacy

Since the start of the Korean War, the Air Force's share of the military budget has jumped from almost one-third the total to almost one-half. This provides the clearest picture of the Air Force's rise to supremacy as the first line of U.S. defense.

One fact tells why airpower has become the chief military instrument of national policy: The Air Force and the Navy's air arm have gained the most from the new weapons technology. The Air Force has bombs with increasing power and decreasing size; engines producing greater thrust for more speed, range, and ceiling; and electronic gear to make up for the limitations of the human pilot under these extreme environments.

- **Guided Missile**—The new developments are best symbolized in the guided missile—an unmanned aerial vehicle propelled during part or all of its flight by a self-contained power plant, and guided to its target by internally or externally controlled means—taking over missions in all the services.

However, despite the hullabaloo over guided missiles, the era of manned aircraft is far from over. Maj. Gen. Bernard A. Schriever, who heads up the Air Force's ballistic missile program, says: "We are still a long way from the push-button type of warfare."

It is true, though, that missiles have already replaced or supplemented conventional guns and manned planes for certain air defense and battlefield and naval bombardment missions. For long-range strategic bombing, however, the piloted bomber will remain the key for at least another decade.

Right now, missiles make up about 35% of total air force missile-plane production in terms of dollars. By 1961, the ratio is expected to be 50-50.

- **Air Force Goal**—Since 1953, the Air Force goal has been a combat force of 137 wings to be on hand by July, 1957. The Air Force is defined in numbers of wings because the wing is its smallest and basic, self-sufficient fighting unit—comparable to the Army's division.

In World War II, the Air Corps' basic combat unit was called a "group." It did not handle its own maintenance and housekeeping chores. These were



PILOTED BOMBERS such as the Boeing B-52 Stratofortress will remain the key to strategic bombing for a long time, even though guided missiles take over many missions.

taken care of by separate administrative outfits permanently assigned to the base at which the combat group was stationed.

Nowadays, combat and maintenance and housekeeping are all under one command. A typical combat wing has a tactical group of three fighter or bomber squadrons, a maintenance and operations base group, and a medical group. Wing personnel varies from 3,600 for heavy-bomber units to 1,700 for fighter wings. The new setup is part of a general military trend towards unified commands to cut overhead and to foster self-sufficiency in individual combat units.

The Defense Dept.'s new budget has provoked a ruckus among Air Force partisans by cutting the program to 128 wings over the next year. And Air Force critics grumble that under present production schedules the combat-ready force will be down to as few as 110 wings by 1960.

- **Three Missions**—Fundamentally, the Air Force has three primary combat missions. One is to be ready to devastate an enemy country. In case of sudden aggression on the U.S., the Air Force would immediately mount retaliatory nuclear air attacks to knock out the aggressor's war-making capacity. Second is to provide planes and warning systems to detect, identify, intercept, and destroy enemy planes approaching our borders. Third is a tactical mission

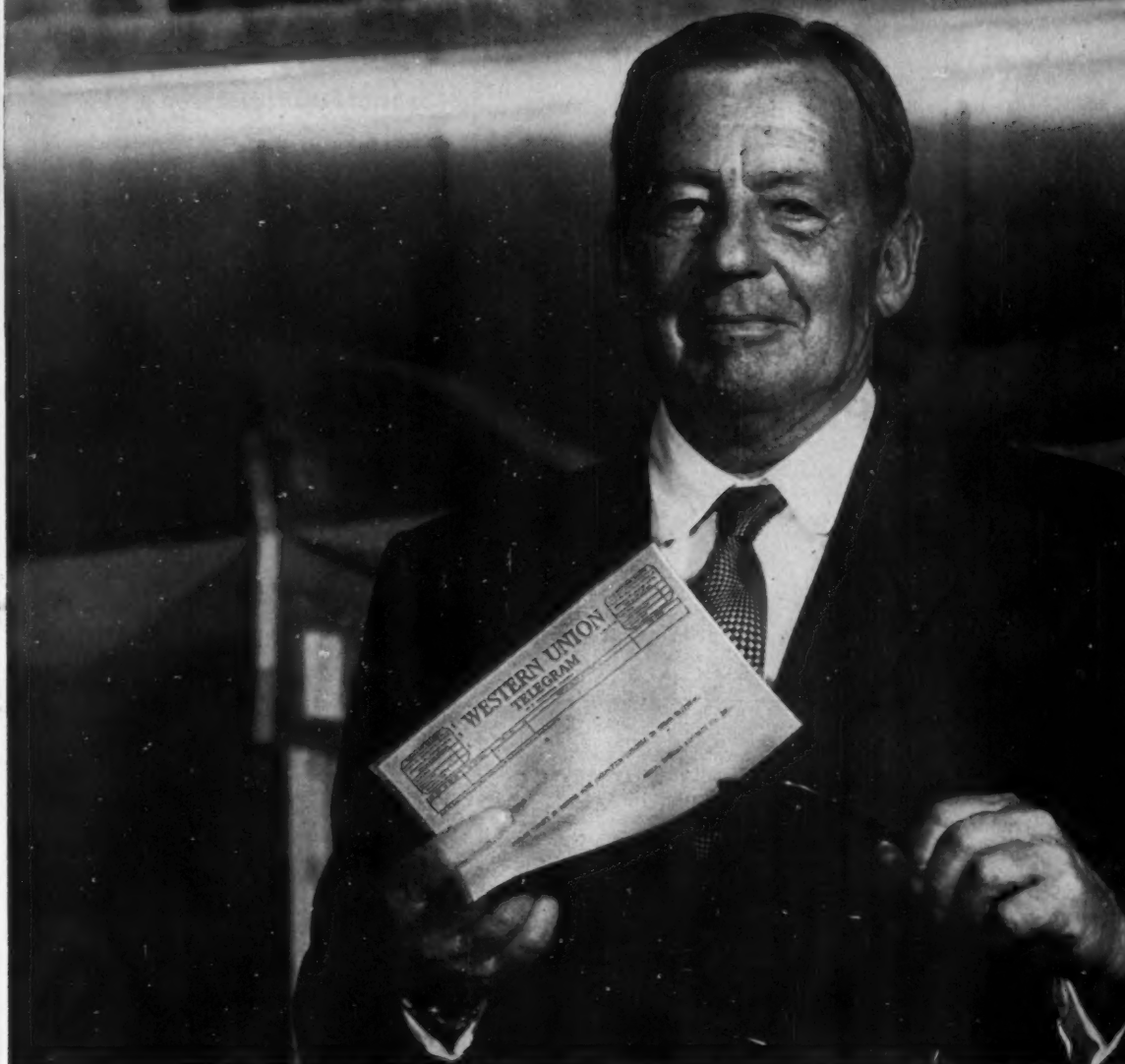
—to gain and maintain air superiority over the battlefield, provide close air support of ground troops, knock out enemy installations behind the battle line, and to furnish airlift for ground forces.

As a fighting unit, the Air Force is divided into three combat commands, each charged with one of these missions: the Strategic Air Command, Tactical Air Command, and Air Defense Command.

- **Strategic Air Command**—As the retaliatory striking force, SAC has to be able to drop H-bombs on an enemy anywhere in the world at any time from either domestic or foreign bases. It has 11 wings of heavy bombers that can fly up to 10,000 miles without refueling, and 34 medium-bombers with a range of up to 3,000 miles unrefueled.

To reach targets in the Soviet Union—the only nation powerful enough to fight us on a scale where total devastation gets into the question—SAC needs overseas bases for the more plentiful medium-range bombers and for its fleet of tanker refueling planes. The bases range in an arc from places such as Greenland, Morocco, Libya, Turkey, Saudi Arabia, to Guam, Okinawa, and Alaska. Dispersal of SAC's bases provides insurance against sudden annihilation by an enemy and proximity to a wide selection of targets.

Right now, the heavy bomber forces consist of nine Convair B-36 and two



Donald W. Douglas, President and Chairman of the Board, Douglas Aircraft Co., Inc., as photographed by Mead-Maddick

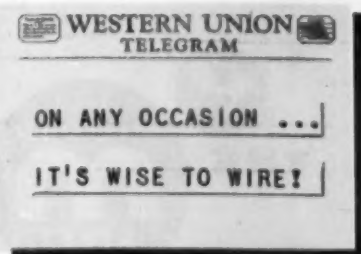
Donald Douglas puts wings on his DC-8 jet with telegrams

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Special Report starts on p. 106

Boeing B-52 jet wings—30 planes each for the former, 45 for the latter. Over the next 18 months, the faster B-52 will replace the B-36 in six more wings.

• **Wing Drop**—Under a new plan, SAC's six fighter-escort wings will be dropped. The reason: The prop-driven B-36, now being retired, requires long-range fighter protection because of its lack of speed (a bit over 435 mph.); the new B-52 flies at least 165 mph. faster at over 50,000 ft. (at least 5,000 ft. higher than the 10-year-old B-36), and is expected to reach its target without escort.

SAC's fighter-escorts—Republic F-84s and the brand-new McDonnell F-101—will be absorbed by TAC and ADC. But because of the SAC decision and an upcoming TAC cutback, production of F-101s and other new "Century Series" supersonic fighters will be at a lower rate than originally planned.

The six-year-old Boeing B-47 jet, probably the same speed as the B-52 and with a much lower flight ceiling, is still the medium-range workhorse. The first prototype of Convair's supersonic B-58, the B-47's likely successor, is only now being tested. This plane will extend the conventional range of a medium bomber with its capability of launching air-to-surface guided missiles such as the Bell Aircraft Rascal.

• **Aerial Tankers**—The most vital factor in extending SAC bomber range is the squadron of 20 aerial tankers assigned to each wing. But the lumbering Boeing KC-97, now the chief operational tanker, puts a damper on the speedier bombers, which have to slow down to 350 mph. and drop down to 28,000 ft. for refueling. Boeing's faster KC-135 jet tanker, a modification of its 707 civil airliner, is only just starting to come off the assembly line.

An average of 300 of SAC's 1,890 bombers are airborne at any hour of the day. Its jet bombers, with their capability of being refueled in flight, have a combat range limited only by the physical endurance of their crews. Three B-52s recently made the headlines with a record-breaking, nonstop global flight.

• **Individual Target**—Each SAC wing has its own target assignments in case of attack on the U.S. Figures released last spring showed that during the previous 10 years, SAC planes had

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SILICONE NEWS

Smart Marketers Sell "Convenience"

• Silicone insulation makes possible
"Powermatic" toaster

• Perk-up electric percolator with
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• New "jet fast" window cleaner
made with Silicones

CONVENIENCE, CONVENIENCE AND STILL MORE CONVENIENCE — that's what today's buyers demand. And they're getting what they want — thanks to Dow Corning Silicones. Here are a few examples of how silicones aid manufacturers in providing features that spell more convenience — and more sales.

LOOK, NO HANDS—Now McGraw Electric has produced a "Powermatic" Toastmaster that takes a slice of bread from your hand, lowers it lovingly, toasts it just right, then wafts it gently back up, all under its own power. Nothing to push or pull. Secret? A tiny motor insulated with Dow Corning Silicones.



The motor, which is toasted at 400°F right along with the bread, would not be possible without silicone insulation. And Dow Corning silicone insulation can take years and years of toasting without damage. That's been proved in thousands of hard-working industrial motors and transformers. Add it all up and you have a more convenient, super-skilled appliance that does everything but butter the toast for you! No. 45

DUNKING ALLOWED—An accidental dip in dishwasher won't wreck the electrical connections in the new Mirro-Matic Percolator, made by Aluminum Goods Manufacturing Company. Reason? The plug-in



insulators are now fabricated from silicone-glass laminate. Why? The silicone laminate has only one hundredth the moisture absorption of the phenolic insulators formerly used . . . a big difference when you're dealing with electricity! Silicone-glass also has greater physical strength, more heat resistance . . . it's more reliable all around. Yet, the silicone laminate doesn't cost a penny more . . . plain low-cost stampings are used instead of molded parts. More savings are realized through less breakage during assembly. No. 46

FRY PANS, TOO — find strong sales appeal in easy washability and controlled electric heat. The Sunbeam

Automatic Frypan gets its extra convenience from Silastic® seals that protect the electrical connections. Silastic, Dow Corning's silicone rubber, keeps them dry even when the Frypan is almost totally immersed in water. No. 47



GOT WINDOW "PAINS"? Window-cleaning has always been one of the most miserable household chores. But now to the rescue: new "Jet Spray Bon Ami", an aerosol bomb that does all the dirty work. You just spray it on, wipe it off and the glass sparkles like new again. It's that simple.

At the press of a button, the Bon Ami bomb sprays foam containing Dow Corning Silicones. Remaining on the window pane after the foam is wiped away, the silicones form an invisible water repellent film that keeps the glass sparkling longer and makes it easier to clean next time.



The foam, by the way, prevents splatter and "run-off" . . . a special convenience to housewives. Jet Spray is fine for other surfaces, too: tile, enamel, chrome, painted wood to name a few. No. 48

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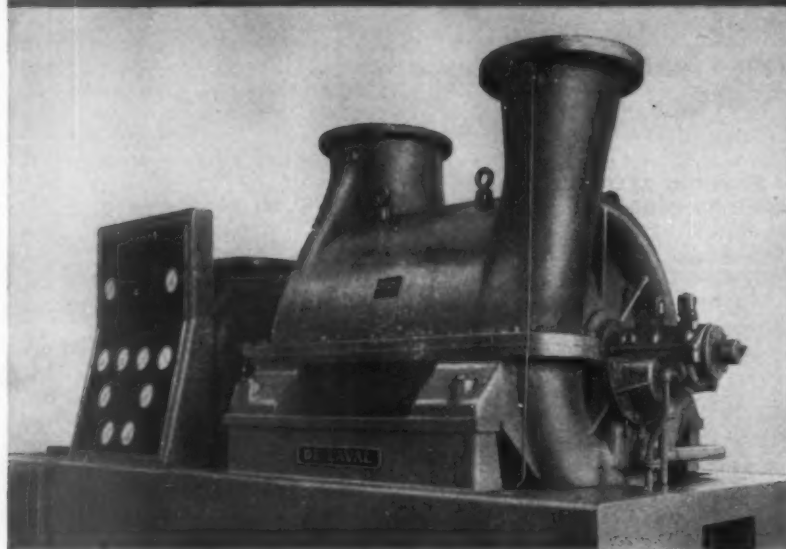
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Special Report starts on p. 106

flown over 6.5-million hours and 600-million miles. Every 3½ minutes, day and night, the year round, SAC planes somewhere in the world complete an aerial refueling. Its units are regularly rotated between overseas and U.S. bases. At least one wing each is now based in Europe, North Africa, and the Pacific area.

• **Tactical Air Command—TAC** is the air command most affected by the missile advance and the planned aircraft cutbacks. Ostensibly, the cutback is being made because of the growing capability of the Army's battlefield-range missiles. The theory is that there is now less need for manned day fighters and fighter-bombers to knock out gun positions, bunkers, troop concentrations, and the like on the battlefield or to destroy supply dumps, communications and transportation lines, and similar installations behind the lines.

But it's no secret that there's an element of economy in the decision to reduce tactical fighter forces. The cost of maintaining the Air Force just at current levels is ballooning. The Pentagon sees in TAC areas where cuts can be justified by new weapon developments. But many military experts are concerned that too much reliance is being put too early on guided missiles—still untested under fire.

• **Strength**—At present, TAC consists of: 17 fighter-bomber wings for close battlefield support of ground troops; 12 troop-carrier wings; 11 day fighter wings to gain and keep air superiority; five reconnaissance wings; and six light bomber wings assigned to knock out enemy installations behind the lines. Among the light bomber units is a wing of Martin Matador missiles, deployed in Europe, which fly about 600 miles at near supersonic speeds with nuclear or conventional warheads.

Under the new plans, at least one light bomber and three fighter-bomber wings will be cut from TAC. In addition, at least three heavy troop carrier wings will be shifted to the Military Air Transport Service, which now has a fleet of 1,454 planes, including 625 four-engine transports.

• **Air Defense Command—ADC** shares its mission of air defense with units of the Army and Navy, all operating under the joint Continental Air Defense Command. The Army provides antiaircraft artillery and Nike missile

43rd Year of Continuing Growth for American-Marietta

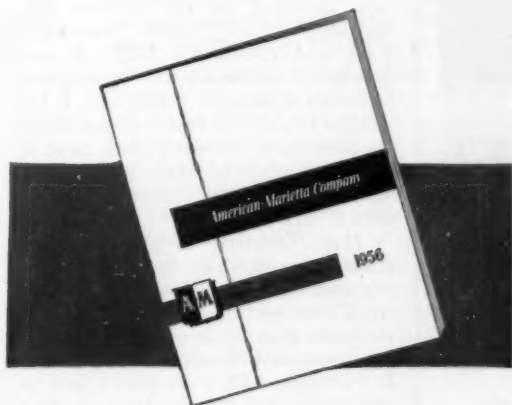
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	1956	1955
Net Sales	\$202,310,815	\$165,339,971
Net Income	16,204,547	11,109,703
Net Worth	81,763,302	57,519,163
Total Assets	144,787,333	104,484,590
Dividends Paid Shareowners	4,934,502	2,919,117
Number of Shareowners	21,467	14,800



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bases. The Navy puts up radar picket planes and ships to patrol offshore in the Atlantic and Pacific plus fighter-interceptor planes from its air stations and from carriers in port.

• **Networks**—ADC's own forces consist of:

• A network of at least 300 radar early-warning stations strung in three separate lines across Canada and along U.S. coastal areas. Most important of these lines is the \$400-million distant early warning (DEW) line, running north of the Arctic Circle from Alaska to Baffin Island near Greenland. Canadian units play a big role in these projects.

• The multibillion-dollar SAGE system—a complex control system of data-processing gear and communications lines to pull the strings together on air defense. Operating semiautomatically out of 32 major stations, SAGE will feed information from air defense radars into batteries of digital computers, then direct the use of interceptor planes and missiles against enemy aircraft.

• Thirty-two wings of missile-armed, all-weather fighter interceptor planes—75 aircraft in each. Chief planes now operating are the subsonic jets, Northrop's F-89, North American's F-86, and Lockheed's F-94. A new generation of supersonic interceptors, including Convair's F-102 and F-106 and Lockheed's F-104, is coming off the assembly lines. Original plans were to add three wings to ADC, but the new schedule holds the command to its present size.

• **How Effective?**—How well would these forces repel an air attack on the continental U.S.? Four years ago, the Air Force said it could probably kill no more than three out of 10 attacking enemy bombers. Now, Gen. Earle E. Partridge, ADC commander, says we are "more able to cope than we were five years or even two years ago." He warns that we won't stack up well against a high-altitude attack by manned bombers until 1959, when the U.S. air defense system will be completely in place. At that time, the goal is from two to six hours' warning of enemy air approach. But as few as 50 well-placed enemy H-bombs could destroy or bring under fire 40% of the U.S. population, 50% of its key facili-



"The doctor's coming right away!"

In an hour of urgent need, you may have had the feeling of relief and reassurance that comes when you know your family doctor will soon step through your doorway. Then you are most aware of how much it means to have a family doctor.

Of course, any physician in your community would respond to an emergency call. It is not quite the same, however, as having your own doctor who has known you and your family through the years. When he comes, you rely on him not only as a physician, but also as a friend.

This warm relationship can be very important . . . as important, in a way, as the doctor's knowledge of medicine. This is because the family physician, in treating a patient, considers not only the current medical phases of the case, but also the patient's personal medical background. Furthermore, a doctor who has year-to-year contact with you can help ease many worries which illness often magnifies.

Whether your doctor is called for a serious emergency or a minor illness, he brings to you the latest developments of medical science. These include new methods of diagnosis, new drugs and treatments for restoring health or controlling many diseases. He also brings to you his

own broad knowledge of medicine gained through years of study in schools, hospitals and clinics.

There are other equally good reasons for having a family doctor. When you go to him for periodic health check-ups, he can often detect trouble early and take appropriate action promptly. Moreover, by consulting your doctor periodically, you get his advice about how to help keep in good physical condition . . . with proper diet and sensible habits of work, sleep and relaxation.

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Specialists, because of their detailed knowledge and experience in diagnosing and treating diseases falling within their particular field, are important allies of the family doctor.

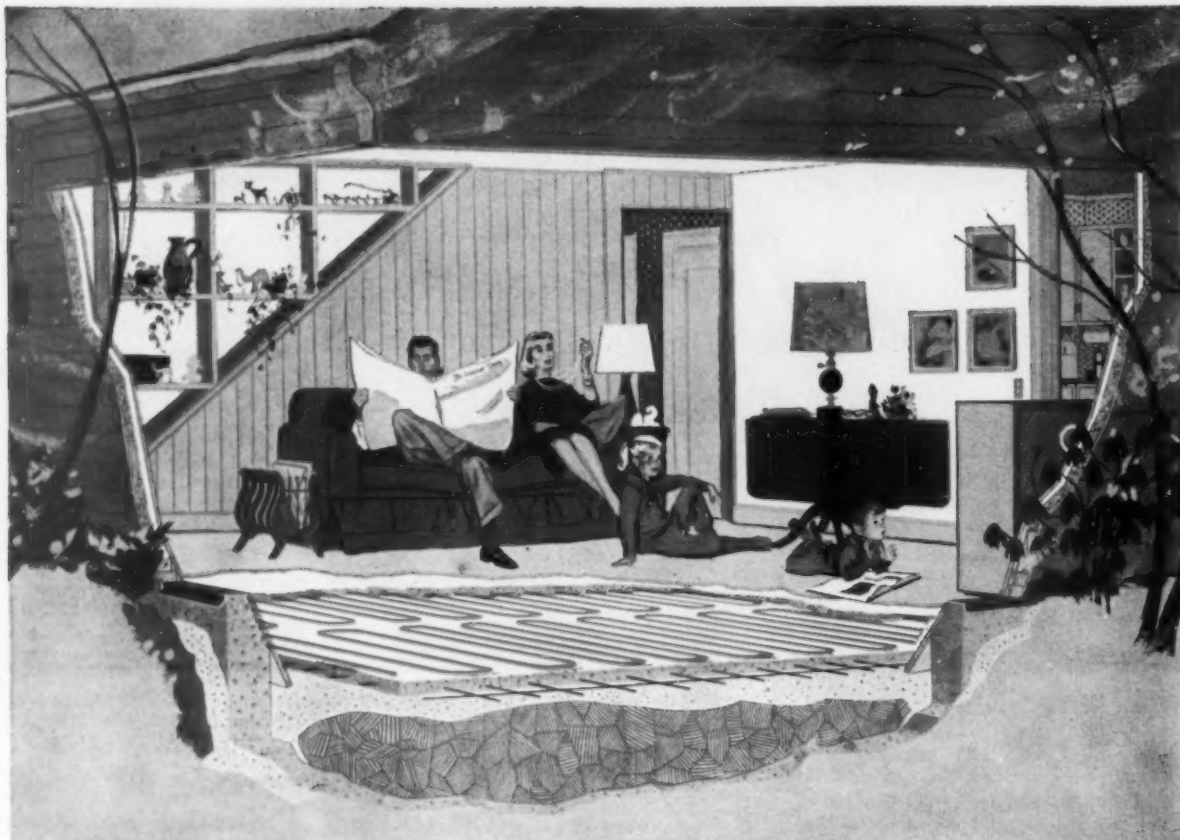
Your family doctor will welcome an invitation to become a "part of your family circle." One of the most practical steps, therefore, that you can take for future health and happiness is to consult your family doctor *now* . . . and keep in touch with him over the years.

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ties, and about 60% of its industry.

The truth is that ADC's first mission is to defend SAC's retaliatory bases rather than centers of population. Moreover, air defense is geared to protect against manned bombers; there's no defense known against the 10,000-mph. intercontinental ballistic missiles being developed here and in Russia.

In all, the Air Force has a force of 910,000 men and 26,000 planes. During Korea, its force consisted of 978,000 men and 19,000 planes. Under the new schedule a slight increase in manpower and a reduction of about 2,100 in the active aircraft inventory are scheduled.

The cutbacks are coming despite re-

ports of Russian numerical superiority in most aircraft categories. The Administration policy is that the U.S. doesn't necessarily have to have more planes to maintain an effective deterrent position, and that it is economically infeasible to build up a total air defense system—since offensive striking power is the best defensive force.

IV. The Army Gears for A-Bomb Warfare

"The atomic age has made the army as anachronistic as the cross bow! How can a foot soldier live in the face of a nuclear burst? Before, you needed him to occupy ground. But what value is there in occupying territory saturated by nuclear bombs?"

So talks a retired infantry division commander, not an Air Force man. His comment typifies the critical pressures under which the Army has been trying to revamp itself to fight a new kind of war.

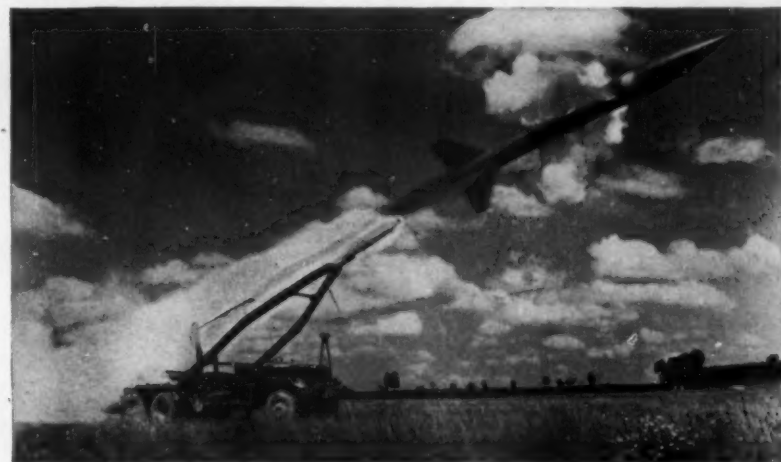
The Army answers that (1) even in a general war, nuclear weapons cannot be used indiscriminately—that terrain and prevailing winds can curtail their value; and (2) that we would also want to get hold of some enemy targets as intact as possible.

Besides, says Gen. Willard G. Wyman, head of the Continental Army Command: "Until the day when the submarine can take a hill and a B-52 can occupy a city . . . the Army division will continue to be the decisive instrument of military force in the arsenal of democracy."

Actually, the Army has been slow to accept the thesis that nuclear weapons must necessarily be used in a future U.S. war. Indeed, many Army strategists still cling to the notion of a nuclear stalemate resulting in "mutual deterrence" and ruling out the future use of the big bomb.

• **Infantry's Role**—The backbone of the Army's forces is still the infantry division. It now consists of three 3,500-man infantry regiments, which break down into three battalions. Each battalion has three companies of riflemen and one heavy weapons company armed with mortars, heavy machine guns, and recoilless rifles. The division also has a reconnaissance company of light tanks and a larger armored battalion of medium tanks. Backing these forces up are the division's artillery—three battalions of 105-mm. howitzers, a battalion of 155-mm. guns, and two battalions of antiaircraft guns. Then, of course, there are the support units—medical, engineering, quartermaster, signal, ordnance, and the like.

While infantry divisions still set up pretty much as in World War II—make up most of the ground forces, the Army maintains lighter-equipped airborne di-



HONEST JOHN, one of the bombardment rocket missiles that is becoming a standard part of the Army's arsenal, takes off from a launcher during a training session.

visions as special "fire brigades"—to be able to jump into action in a hurry with a minimum of fuss and bother. Function of the armored division and its tremendous firepower is to operate where favorable terrain can be exploited for fast-moving, crushing drives—the so-called blitzkriegs.

• **Changes**—Still, the Army is getting ready to fight on larger atomic battlefields where combat action will be characterized by rapid movement and dispersal of forces. The changes show up like this:

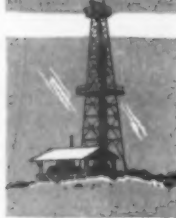
• **Use of low, slow-flying planes** for mobility on the battlefield is increasing. The Army now has 4,200 helicopters and small fixed-wing planes. The Army expects to have about 800 more by June, 1958. The main functions are to move troops and equipment quickly within the combat zone, and for reconnaissance and command. The search is on for planes capable of short or vertical take-off and landing.

• **Offensive tactics** are now centered on small, combined-arms task forces—from platoons of some 40 men to 3,500-man regiments—which can regroup quickly for massed effort or break down for sustained independent action. The stress is on increased firepower which is at the same time selective and controllable—as opposed to the massive force of high-yield nuclear bombs. The task forces will be equipped with rifles

and other small arms plus heavier weapons—like the new lightweight Little John atomic rocket. Defense will be mostly a matter of rolling with the punch. There'll be no rigid main line of resistance. The defense will be elastic; enemy penetrations of the defense positions will be normal.

• The Army division is being reorganized to exploit the latest technological advances in firepower, mobility, and communications. New "pentomic" divisions of five combat groups equipped with low-yield atomic weapons will replace the larger "triangular" divisions of three basic regiments. In addition, six new "atomic support commands" are being set up. These will be units of about 6,000 men equipped with atom-tipped missiles and guns to back up U.S. or Allied infantry divisions with long-range artillery fire.

• **New equipment** is being rushed into the Army's arsenal: bombardment rocket missiles—Honest John, Corporal, and Lacrosse—the Dart anti-tank missile; the Nike Ajax antiaircraft missile; the Redstone tactical ballistic missile. Atomic warheads have been developed for most of the missiles and for 280-mm. and 175-mm. guns and the 8-in. recoilless rifle. Conventional equipment is being improved—tanks with bigger guns and better fire control, powerplant, and suspension systems;



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Special Report starts on p. 106

lighter and faster-firing small arms. New electronic gear is being produced—radios with longer ranges, a radar mortar locator equipped with an electronic brain.

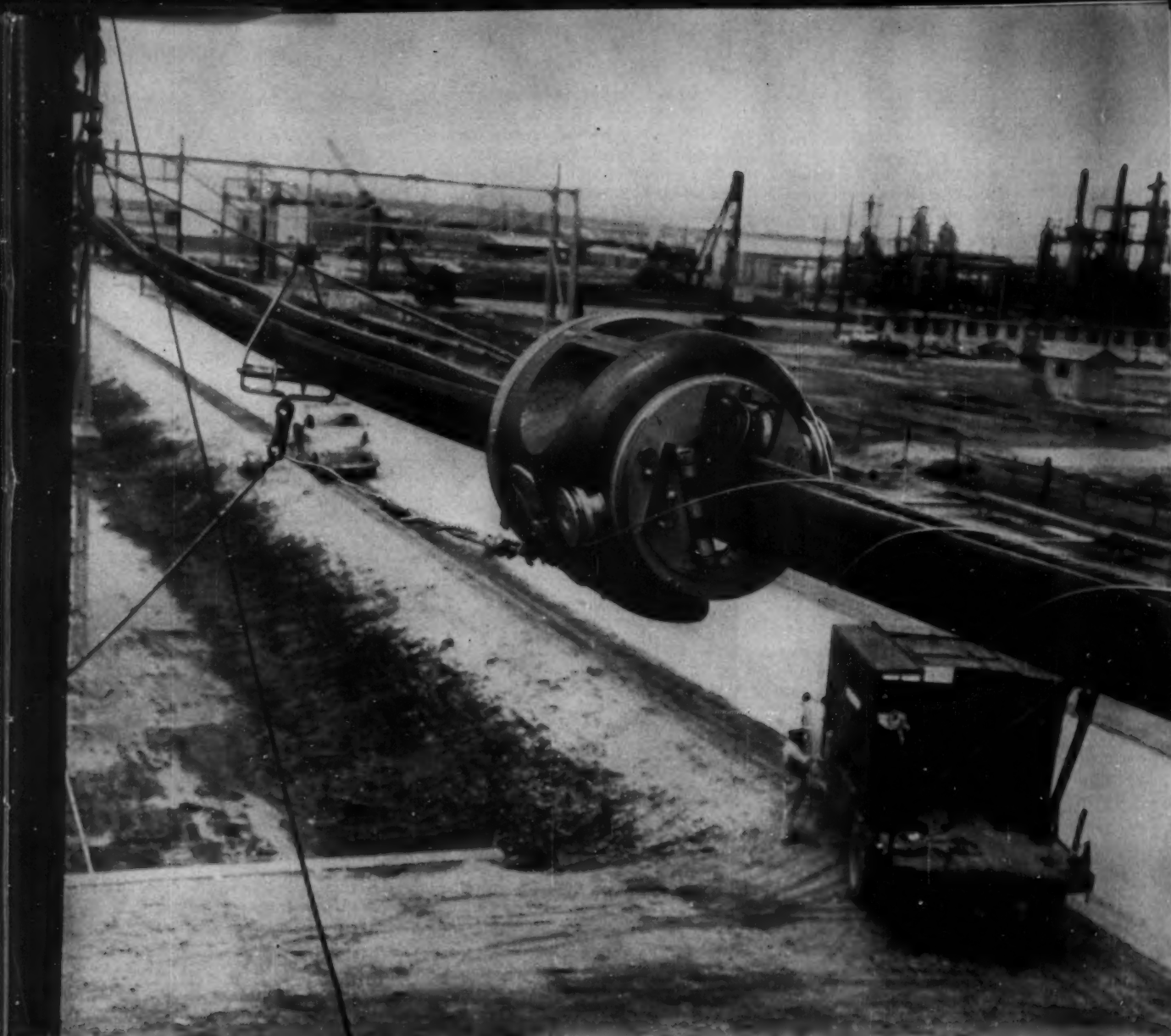
• **Little by Little**—But these changes are taking place slowly. Two factors have kept the progress in low gear. For one, the Army has been pinched for funds to carry out its ambitious plans—the lion's share of defense money goes for airpower. The other delay stems simply from traditional Army conservatism. Missiles, atom warheads, and other new equipment are not widely distributed.

Airlift for ground forces—an Air Force chore—is in short supply. Best guess is that there's enough airlift only to ferry in the combat elements of one airborne division to a place as far away as Laos in about 10 days.

Right now, the Army has 19 divisions: five infantry, two armor, and two airborne in the U.S.; two infantry, two armor, and one airborne in Europe; three infantry in the Far East; one infantry in Alaska, and another in Hawaii. One division will be de-activated within the next four months, another shortly thereafter. Many of the divisions are far below maximum strength. The Army also has nine reinforced regimental combat teams of about 5,000 men each and 133 anti-aircraft battalions.

• **Big Air**—Authorized strength of the airborne division is now 16,937. The pentomic model will have 11,500. It will need 600 planes for an assault airlift, about 400 less than for the conventional airborne division, and will have smaller logistic support companies and a beefed-up signal unit to handle expanded communications needs. The entire division—less a medium-tank battalion—will be air-transportable. A prototype unit, the 101st Airborne Div., is now undergoing field tests at Fort Bragg, N. C.

• **Reorganization**—Pentagon plans are to reorganize all its divisions over the next 18 months—but "without maximum equipment." The 17,454-man infantry division will be cut about 20%. The armored division of 14,650 men will stay as is. The Army believes the armored division, which has a flexible setup of three operational combat commands rather than regiments, is already well suited for atomic warfare because



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of its mobility and protection against atomic blast.

In World War II, almost all armies had special elite "shock" troops—the British Commandos, U.S. Rangers, and the like. Nowadays, the Army is setting up volunteer hush-hush units of

"special force" troops. These are tough, uniquely trained, versatile paratroopers to be dropped behind enemy lines to organize and lead native guerrillas.

Exact numbers of men in these units, first set up five years ago, have not been made public. An average special force

unit consists of 20 men, including language, medical, demolition, and communication specialists. The men undergo grueling training to prepare for action anywhere and anytime. Their first objective would be to form native armies of liberation to aid U.S. forces.

V. Navy and Marines Take a New Tack

Of all the military services, Navy missions have been influenced the most by political and technological developments this past decade.

The emphasis is not so much on control of the sea for the sake of commerce—although that's still implicit in Navy doctrine since it's not unanimously accepted that the next war will definitely be one big fast nuclear holocaust. Rather, naval emphasis is now on mobile striking forces—that is, a fleet with offensive carrier task forces that could quickly bring a war to the enemy's shore.

This changing emphasis has been brought about by two big factors:

- **Through U.S. mutual defense pacts** with 42 countries bordering five oceans, Navy's task of controlling the sea has been vastly extended. As British naval strength has shriveled under austerity, the chore of protecting Free World sea lanes has become heavier for the U. S. Navy. At the same time, Russia has been building up both a surface and submarine fleet of great size. It now has over 400 submarines, almost 10 times the 1939 Nazi sub force.

- **All the while**, the scope of naval warfare has ballooned under pressure from new types of ships, planes, and explosives. Fifty years ago, the British could control the Straits of Gibraltar with a few guns mounted at its base there. To do the same job today, NATO needs a complex of air and naval bases ranging the length of the Mediterranean.

- **Technological Shifts**—It has become trite to talk of the Navy's technological revolution. But there's no other way to describe the fantastic shift from steam to A-power, guns to guided missiles, gunpowder to nuclear explosives, and from slow, prop-driven planes to supersonic jets in less than a decade.

From this shift has come a naval punch with far greater versatility and strength. The Navy's fleet consists of about 970 active vessels—including 15 large attack aircraft carriers, 9 smaller support carriers, 3 battleships, 20 cruisers, 250 destroyer-type vessels, 110 submarines, 115 mine sweepers and layers, and 80 patrol vessels; the remainder are auxiliary and amphibious craft. One of the subs is nuclear-powered; 15 other A-powered subs, one cruiser, and a carrier are either in the design or construction stage.



USS FORRESTAL, a 60,000-ton carrier is described by the Navy as "a 10,000-ft. concrete runway compressed into a 1,000-ft. hull with built-in mobility."

In number of ships—no longer a necessarily decisive fact because of increased firepower and ranges—the current fleet is about one-tenth the peak size of the World War II fleet.

- **Blue Chip Vessel**—The guts of naval striking power is still the attack aircraft carrier. It has replaced the battleship as the Navy's capital or blue chip vessel—vital to every offensive or defensive operation. "Take it away," a non-flying Navy strategist admits, "and you have no Navy." Supported by mobile logistic support forces, carrier task forces can strike and restrike an enemy repeatedly over an indefinite period of time, are able to cover over 700 miles daily.

Three of the carriers are of the Forrestal class—60,000-tonners with stronger and larger landing areas, increased hangar-deck heights, improved steam catapults, faster elevators, stronger arresting gear, and other new features able to handle the latest supersonic planes. Four more are in the works.

In an obvious dig at the Air Force, the Navy boasts that its latest carriers "represent a 10,000-ft. concrete runway compressed into a 1,000-ft. hull," that has "bases with built-in mobility

and dispersability," and they are far more secure from enemy missile or aircraft attack than fixed land bases.

- **The Fleet**—The Navy has 9,700 aircraft—fighters, attack or tactical bomber, patrol, and transport planes. Its combat force is organized into 17 carrier air groups—comparable to Air Force wings—and 19 smaller antisubmarine squadrons. Its Douglas A3D attack jet bomber has a combat radius of over 1,500 miles unrefueled—1,500 miles out, 1,500 miles back—and can carry an H-bomb. That's three times the range of World War II carrier bombers. The new Chance Vought F8U fighter is in the 1,000 mph.-plus class.

From here on out, every new Navy ship will be able to launch guided missiles. Already, 10 carriers, 4 cruisers, and 2 submarines carry Chance Vought's Regulus I, a surface-to-surface missile that flies as far as 600 miles with nuclear or conventional warheads. An improved version now in production doubles its subsonic range and can fly its present range at supersonic speeds.

Two converted cruisers armed with the Convair Terrier anti-aircraft missile are now at sea. Next year, the USS



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Special Report starts on p. 106

Galveston, armed with the Talos anti-aircraft missile—a still more deadly weapon—will become operational. Most naval jet planes are now equipped with Douglas' Sparrow or the Philco-Bendix Sidewinder air-to-air missiles.

The development of faster and bigger carriers that can launch nuclear-armed jet planes has strengthened the Navy's hand on a role—supplementary to SAC's—in strategic bombing. But its future in this field is tied even more to Polaris, a ship-launched 1,500-mile ballistic missile, under development by Lockheed, General Electric, and Aerojet General Corp.

• **Self-Sustaining**—The key to recent changes in naval strategy is staying power—the ability of the fleet to remain at sea without replenishment in port. The Mediterranean Sixth and Far East Seventh fleets, for instance, are self-sustaining at sea. This has been stressed through development of new transfer-at-sea techniques and rotation of ships and personnel. The advent of A-powered vessels naturally bolsters this trend. Over 80% of naval logistics at sea involves oil.

The threat of nuclear attack, obviously, has altered the make-up of the fleet at sea. The emphasis now is on dispersal: The combat radius of a task force is now about 50 miles—10 times the dispersal considered essential during World War II.

• **Same Old Marines**—In all the inter-service feuding and fussing over military missions, the role of the Marines is unchanged. It's based on the thesis that the naval commander at sea must have the means of projecting his power ashore to control any area vital to his assignment.

But Marine tactics have been drastically overhauled. Nuclear bombs and mines have made World War II-type massed assaults from landing craft creeping at five knots to fortified beaches unfeasible. In Marine jargon, "amphibious" no longer means landing from small boats; it now refers to landings from helicopter.

Marine landing tactics revolve on a new technique called vertical envelopment. It works like this: Carrier-based fighter bombers blast a corridor through enemy fortifications as far back from the beaches as necessary; then squad-

Neoprene bellows encloses complex mechanism that controls pitch of blades and angle of rotor hub. The flexible housing must withstand hot oil on inside, sun and weather outside.



New rotor has 1200 fewer parts, more time to fly

Rotor maintenance time reduced 75% with help of neoprene—a Du Pont man-made rubber

Doman Helicopter, Inc., Danbury, Conn., has developed a simplified rotor design, featuring a rotating hub that tilts in any direction. It has 1200 fewer parts than conventional non-tilting rotors, and requires far less maintenance.

To make their tilting rotor practical, Doman had to find a flexible housing. The material to be used in the housing had to protect the mechanical assembly from dirt and rain, and resist sunlight and weather. It had to have outstanding resistance to the hot (225° F.) oil which bathes the moving parts. Doman's rubber goods supplier knew from experience that only neoprene had the combination of needed properties to meet these varied requirements. Tests confirmed the soundness of their recommendations.

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Point 5. Do you fail to rotate duties in disbursement department?

Point 10. Do you neglect to have checks serially numbered by the supplier?

Point 13. Do you leave unused blank checks where they can be taken by unauthorized persons?

Point 24. Do executives, after signing checks, fail to make sure that they are not handled again by the same person who prepared them? Such carelessness often leads to diversion of funds into criminal channels.

For complete list of 44 ways to protect your company's bank account, write for valuable booklet "Disbursement Methods—their use and misuse." Write us today on your business letterhead.



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Special Report starts on p. 106

rons of helicopters carrying about 24 men each come in from small carriers operating at sea outside mine fields.

• **New Role**—Only lately, however, has there been any talk of revamping Marine organization in line with the new tactics. Marine divisions are still set up as in World War II—with 21,000 in each, including three 3,500-man infantry regiments, and considerable support forces.

Reorganization plans haven't been firmly set yet. But it seems likely that there'll be a slight manpower cut plus a new stress to make all the division's equipment transportable by air, since it's no longer possible to bring in medium tanks, artillery, and other heavy gear across the beaches.

The Marines now have three divisions—one in California, another based in North Carolina attached to the Atlantic fleet (an 1,800-man battalion is with the Sixth Fleet in the Mediterranean), and the other deployed in Japan, Okinawa, and Hawaii. An air wing consisting of assault, transport, helicopters, fighter, and bomber units, backs up each division.

In special support units the Marines have the atom-tipped Honest John rocket and a land-launched version of the Terrier antiaircraft missile. Other missiles and nuclear weapons will soon be shipped in.

Divided between the Atlantic and Pacific fleets, the Navy claims to have enough amphibious lift capacity to handle half the Marines' combat units right now.

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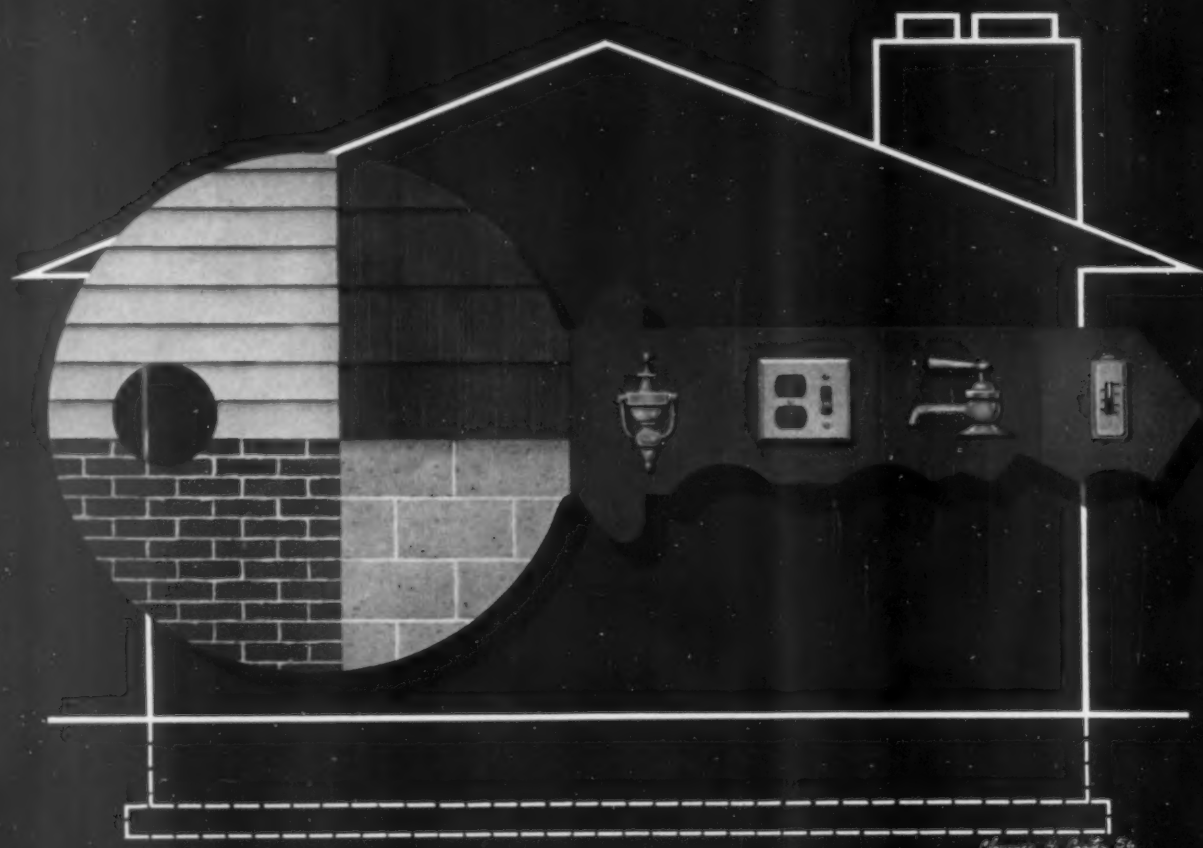
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30 billion "pieces" needed for new homes this year

Housing rises on invisible foundation of bank credit

As most "do-it-yourselfers" have found out, a house is a surprisingly complex structure. Without counting individual nails and screws — or bandages for banged-up thumbs — the average home requires as many as 30,000 separate pieces. With another million or more housing starts predicted for 1957, manufacturers of building materials must supply at least 30 billion component pieces for new construction alone.

In addition, the booming fix-up market, with a potential of 50 million existing homes, is taking almost half the production of many building suppliers.

To satisfy the demand for up-to-date housing, manufacturers, architects and builders have introduced new materials and techniques. These include modular

storage walls and a roofing board that is deck, insulation, and interior ceiling in one. Open planning, which eliminates many walls, and prefabrication also simplify construction.

Still experimental are air-curtain doors and walls, structural plastics, metal-clad honeycomb framing panels, and other new developments.

The industry is the nation's largest user of credit. First National City supplies much of this in many ways — seasonal and intermediate credit for producers and distributors of building

materials and appliances; construction loans for contractors; intermediate credit facilities to aid placement of mortgages with long-term lenders; and, in Greater New York, modernization loans for home owners.

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INTERNATIONAL OUTLOOK

BUSINESS WEEK

MAR. 2, 1957



It looks as if the storm center in the Middle East soon may shift from Israel back to Egypt.

That's assuming agreement is reached on the withdrawal of Israeli troops from Egypt. At midweek, the signs pointed to some sort of formula—probably evolved by the United Nations—to do that.

Then the U. S. and the U. N. could try to bring Pres. Nasser of Egypt to terms on (1) the future of the Suez Canal; and (2) a truce in the Arab-Israeli conflict.

The State Dept.'s Middle East experts have been assessing the chances of getting working agreements out of Nasser. Their tentative forecasts are gloomy. Here's why, as the experts figure it:

- Nasser probably will take at least as tough a line on Suez and Israel as he did before the British, French, and Israeli attack.
- The West's leverage on Nasser has never been too strong. Now it has been weakened by the political wrangle in the U. S. between the Administration and Congress over the question of sanctions against Israel.
- The odds are that we won't get more than an uneasy, patched up stalemate in the Middle East—without any real progress on the basic problems. Nasser, for example, is likely to cause trouble over canal tolls and over the question of war reparations.

The question is how long Nasser can get away with obstructive tactics.

Up to now, the Administration's main hope has centered on getting Arab and Asian leaders to put pressure on Nasser. But State Dept. experts fear that Arab confidence in the U. S. has been seriously weakened by the Administration's failure to force withdrawal of Israeli troops from Egypt.

Meanwhile, controversy over the Israeli withdrawal is stalling Senate action on the Eisenhower Doctrine. Leaders of both parties are trying to keep the two issues separated. But some Democrats will fight to delay action until the Israeli question is settled.

—•—

Longer term, the outlook for the West is not so cloudy.

Prospects are bright for developing alternate sources of energy for Europe and alternate routes to the Suez Canal—thus weakening the Arab stranglehold on the European economy.

New pipelines under consideration across Israel and Turkey would lessen Nasser's bargaining power. The scores of super-tankers now building in the West will do the same thing. Beyond that are Europe's plans for nuclear energy—and hopes for developing large new oil resources in the French Sahara and in Canada.

With Europe's dependence on the Middle East cut down, it's hoped that better economic relationships between the two can be worked out.

There are other long-term hopes, as well. If the immediate crisis can be weathered, the Middle East has an enormous potential for its own economic development in its oil revenues.

This prospect already is beyond the pure dream stage. The World Bank recently submitted to the Arab League (at the League's request) a

INTERNATIONAL OUTLOOK (Continued)

BUSINESS WEEK

MAR. 2, 1957

proposal for a regional Arab development bank. The idea is that funds contributed by the oil-producing countries could be funneled into development of the "have-nots"—like Egypt, Syria, and Jordan.

Underlying the whole idea is the calculation that, given an end to the crisis, the oil-producing nations of the Middle East will earn something like \$15-billion over the next ten years. They probably won't be able to spend sensibly more than about \$5-billion of this on their own internal development.

Such schemes clearly depend upon better relations among the Arab nations themselves as well as on the end of the Arab-Israel feud.

—•—

U. S. exports and imports—rising steadily over the past four years—seem to have reached a plateau. Our exports are almost sure to dip from the peak reached during the fourth quarter of last year, when they hit an annual rate of \$18.6-billion. That's the major conclusion of a Commerce Dept. survey of the U. S. balance of payments.

According to Commerce, dollar accumulations by foreign countries this year will be much slower than recently—if, in fact, they continue at all. During the fourth quarter of 1956, U. S. receipts from foreign transactions topped our overseas payments—the first surplus recorded since 1952.

Last year's record \$2.7-billion outflow of U. S. private capital also seems to have marked a peak. It was more than double 1955, but large non-recurring direct investments accounted for much of the spurt.

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Here's a rundown of some important political developments:

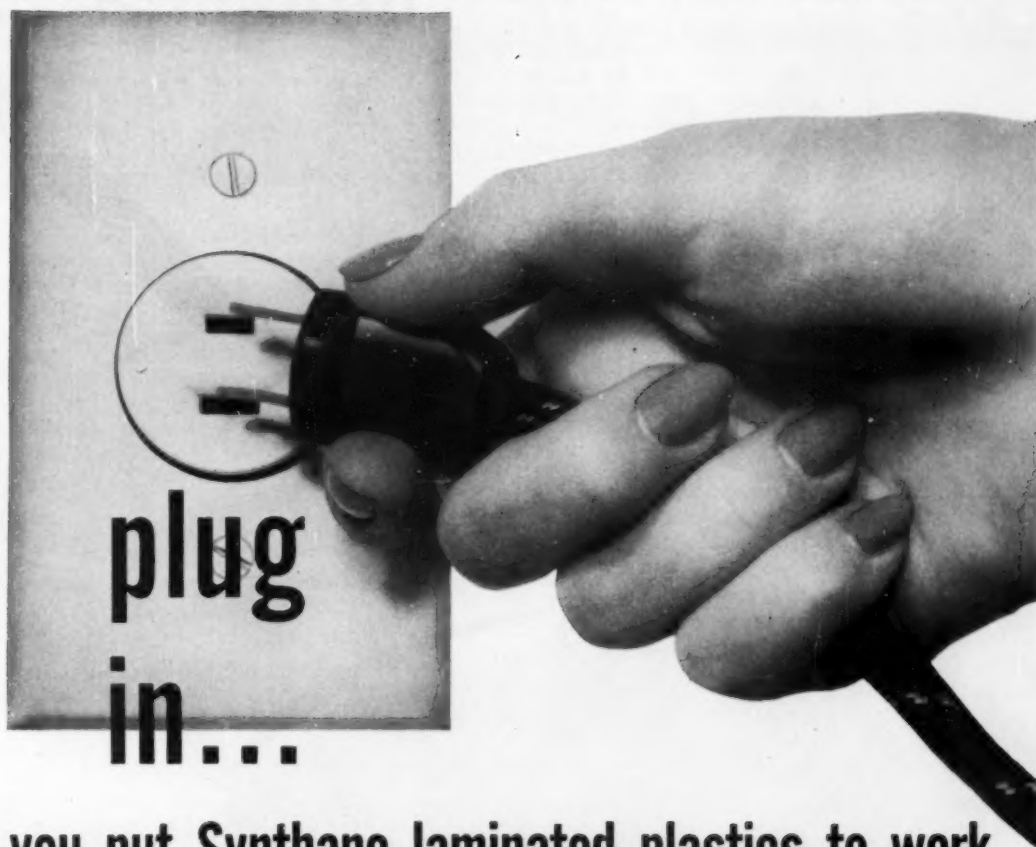
Japan's new government, the second within a few months, won't bring any spectacular changes. Prime Minister Kishi was a member of the former cabinet, is keeping it intact for the time being. He is generally considered more pro-American than his predecessor. But that won't protect him from pressures to expand trade with Red China, restrict U. S. investment in Japan, and economize on defense.

The Spanish government is beginning to look somewhat less like a Fascist dictatorship. This week Franco brought fresh blood into his cabinet and reorganized his economic administration—an answer to both popular pressure and discontent in the business community.

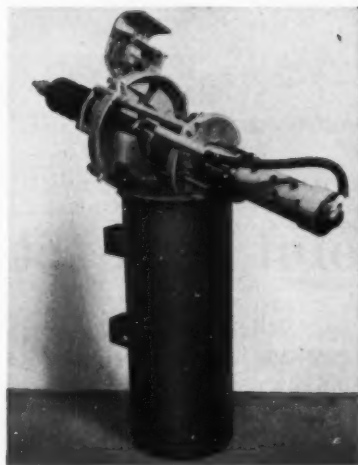
The Yugoslav government has been declared an outcast by Moscow. The Kremlin has reneged on promised aid and has turned its propaganda guns on Tito. The Yugoslav dictator is again trying to find shelter in the Western fold.

The French government is hoping to gather some political strength from Premier Mollet's visit in Washington. But the Administration wasn't making any commitments this week to help Mollet solve his two worst problems—Algeria and the drain on France's gold reserves. (This week a group of French banks received a \$100-million credit from a group of U. S. banks to cover French oil purchases here.)

The British government is hoping to offer Britons an incentive budget in April, with some tax relief for the middle income groups. These include scientists, technicians, and junior management men. (Many of these men are leaving Britain for jobs in the U. S. and Canada.) Meanwhile, a persistent downward drift in London short-term money rates has discounted another ½% cut in the bank rate. This suggests that another cut in the official rate may be in the offing.



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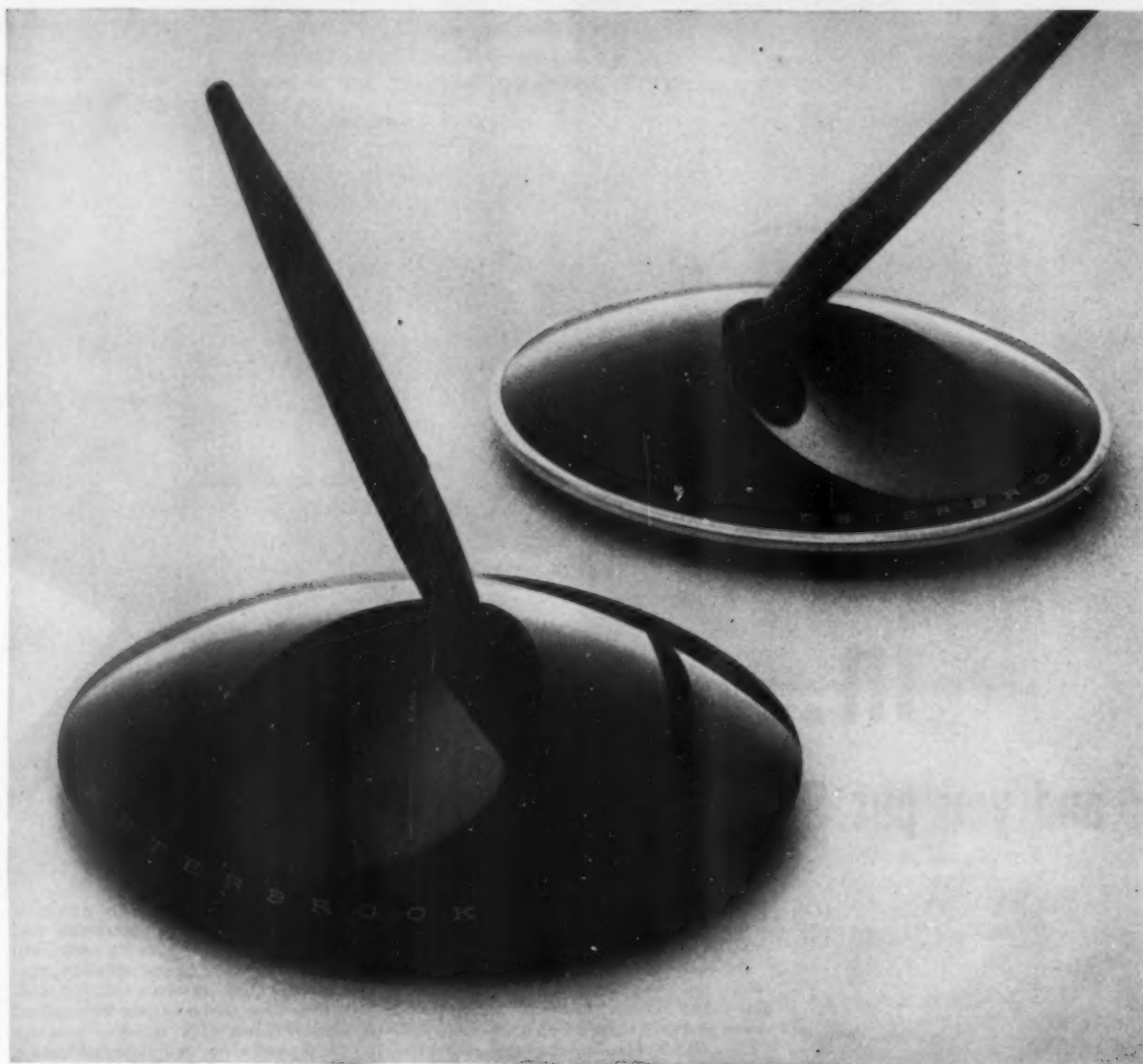
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Pentagon's Double-Decker Decision

Speeds New Weapon, Research Projects

The Defense Dept. made two announcements this week to underscore a new military drive toward cutting lead time on development of new weapons and pushing research projects into production as quickly as possible:

A top-level Pentagon committee outlines means of reducing the time cycle involved in the conception, design, testing, and production of new aircraft—which ranges up to 10 years in some cases—and proposed use of the new plans in the development of guided missiles and other major weapons. The plans have been put into effect by the military.

Functions of the Assistant Secretaries for Applications Engineering and Research & Development were merged. Frank D. Newbury, who has held down the first slot, takes over a new post as Assistant Secretary for Research & Engineering. C. C. Furnas, who recently resigned as Assistant Secretary for R&D, will not be replaced.

Among the measures outlined for cutting lead time: simpler contracting and design specifications; more advance payments to contractors and advance procurement of production equipment and facilities; more authority and longer tours of duty for weapon development program managers; and faster study of new weapon ideas.

Newbury's appointment is considered an official blessing for policies to limit research to specific projects—as opposed to more fundamental studies—and to push new weapons into production as fast as possible.

• • •

Price Fixing, Sports, Grand Jury, Books

Give Supreme Court a Busy First Week

After a month-long recess, the U.S. Supreme Court came back this week with a whole stack of decisions and orders. In addition to marking the last day on the bench for Justice Stanley F. Reed, last Monday was notable for these rulings, among others:

- The Federal Trade Commission, in addition to barring collective use of a uniform zone delivered pricing system to fix prices in the lead pigment industry, may bar the individual companies from using their own plan. The companies "plainly disregarded the law" and "must expect some fencing in," was the decision.

- Professional football—like professional boxing, wrestling, basketball, and the legitimate theater—is a business; and, unlike professional baseball, it is subject to the federal antitrust laws. The court's majority says that "if this ruling is unrealistic, inconsistent, or illogical," the way to eliminate error is by legislation, not by court decision. Several congressmen reacted quickly to the hint, talked of bills to reverse earlier court decisions and bring baseball under the Sherman Act.

- The court agreed to hear arguments on the issue of

grand jury secrecy, involved in Atty. Gen. Brownell's refusal to open a grand jury transcript to lawyers defending three major soap companies in an antitrust case. The government's case was dismissed because of Brownell's stand that he could not violate the sanctity of the grand jury—even on court order.

- A Michigan law making it a crime to make available to the general public a book found to have a bad influence on youth is unconstitutional. The law is not reasonably restricted to the evil it is supposed to prevent, the justices say. Instead, the law would "reduce the adult population of Michigan to reading only what is fit for children."

• • •

Battle of Private vs. Federal

Rages at Atom Program Hearings

Democratic members of the Joint Congressional Committee on Atomic Energy this week claimed rising costs of atomic power projects as another reason the federal government should construct power reactors.

The claim grew out of the hearings into the status of the civilian atom program (BW—Feb. 16 '57, p41). Atomic Energy Commission Chmn. Lewis L. Strauss had described industry's progress as "most encouraging."

Strauss announced receipt of three proposals for power projects from (1) a group of 12 utilities led by American Gas & Electric Co.; (2) Pacific Gas & Electric Co.; and (3) a Northwest utilities group led by Pacific Power & Light Co.

But increased cost of nuclear power projects—up 20% to 40% over original estimates—gave Democrats their best argument for federal construction. Sen. Clinton P. Anderson (D-N.M.) said "they are all the more proof that private industry is not going to rush wildly into a chance to throw its money away." AEC Commissioner Thomas E. Murray also argued that with costs high and going higher, industry would be slow in getting power projects under way.

The hearings also turned up a new issue for the political grist mill: a General Accounting Office report critical of the first contract AEC has written with a private group for a power demonstration reactor. This is the Yankee Atomic Electric Co. project. The committee will go into this report next week.

• • •

Census Bureau Changes Its Policy

On Counting Noses of the Jobless

The Census Bureau's new policy for counting the jobless will add about 250,000 persons to the ranks of the unemployed. Up to now, persons not at work but with a job assured within 30 days have been counted as employed. Unions have said this distorts the actual job picture. Now such persons will be counted as unemployed. Last year, the change would have increased average unemployment from around 2.5-million to 2.7-million or so. Both methods of counting the jobless will be used in census data so comparisons with earlier figures can be made.



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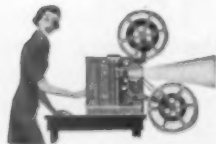
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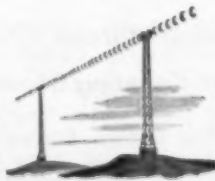
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Lease-Purchase Plan Falls Flat

- And Congressional committees want to know why.
- A few years ago, it was hailed as the best way to get federal buildings without overloading the budget. But it never caught hold with builders or investors.
- When only two projects out of 149 that were planned a year ago came under contract by yearend, the program was suspended this month. Substitute plans are sought.

When a government program for spending money in local communities breaks down, Congress gets interested. That's why two Congressional committees this week are looking into the failure of the government's lease-purchase plan for building post offices, courthouses, and federal office buildings in cities and towns across the nation.

Lease-purchase was born three years ago as a compromise way of getting needed government buildings put up without too great a burden on the 1954-55 budget. Straight renting cost the government too much, leaders in the Administration and Congress agreed. Lease-purchase, along the lines drawn by Senate and House public works committees, seemed a happy solution.

I. The Theory

This is how the lease-purchase plan was supposed to work:

The government, through either the General Services Administration or the Post Office Dept., would pick sites for needed buildings and then call for bids from private contractors, subject to cost estimates approved by Congress and the Bureau of the Budget. Construction was to be financed by private investors, who would lease the buildings to the government, at reasonable rental plus interest, for long terms up to 50 years. At the end of the lease, the government would take title. Until then, the title would be held in trust. The plan was supposed to stimulate business and give private investors and contractors an attractive, risk-free deal while it gave the government the building it needed at less cost than outright purchase or long-term rental.

II. The Record

It didn't work out that way. The program has floundered so badly that it was suspended a couple of weeks ago.

Last spring, 149 projects totaling \$766-million were in the planning stage—98 under GSA, 51 under the Post

Office Dept. By December, this is what had been accomplished:

- GSA had got only nine of its 98 projects as far as Congressional approval and invitation for bids.

- Of these nine projects, two went begging for bidders entirely, six drew bids that were unacceptable—either they were higher than the approved cost maximums or contained too many conditions of payment or performance—and one bid was accepted—a \$2-million office building and post office in Rock Island, Ill.

- Of Post Office Dept.'s 51 projects, 48 were approved by Congress, 10 were put up for bids, and one bid was accepted—a \$125,000 post office in St. Mary's, Ohio. Bids on the other nine projects were rejected as too high or too conditional.

- **Backing Water**—At this point, a Senate Public Works subcommittee headed by Sen. Pat McNamara (D-Mich.) called an investigation, and a House Public Works subcommittee headed by Rep. Robert E. Jones (D-Ala.) also called a hearing. Jones himself dropped a bill in the hopper calling for repeal of the lease-purchase law and a return to the direct appropriation method of financing.

GSA and Post Office, "jointly" with the Treasury Dept. and the Bureau of the Budget, called a halt to lease-purchase negotiations.

GSA Administrator Franklin Floete and Postmaster Gen. Arthur Summerfield said the suspension was temporary. They claimed it was part of the Administration's anti-inflation campaign and would be revived when inflationary trends in the construction industry calmed down.

- **Basic Causes**—But the Congressional committees are after more basic reasons as to why the program failed.

Robert Long of Associated General Contractors told McNamara's group last week that one big reason was the 4% interest rate the government set as return on the original investment. Floete admitted the program might have done better under a 5% rate.

Asst. Postmaster Gen. Ormonde A. Kieb said he thought the paperwork on lease-purchase, involving 47-page forms, was "too cumbersome." Investors and contractors aren't so hungry for opportunities that they want to go through so much paperwork.

Long and two spokesmen for the AFL-CIO building trades unions—George Riley and Cornelius Gray—challenged the implication that there is inflation in the building industry. Long cited unemployment "patches" in Denver, Detroit, and Kansas City. He said investors had told him that plenty of lending money is available "at a competitive price."

III. What Next?

There's no doubt that both Congress and the Administration are disappointed that the program hasn't worked out. Its failure has also hurt some urban renewal and area redevelopment programs that were depending on the new government buildings as keystones. In Washington, D. C., for example, seven proposed lease-purchase government buildings, to cost \$165-million, are the heart of a Southwest area redevelopment program that is virtually dead as a result of the decision to shelve lease-purchase.

- **Alternatives**—The question for Congress is what to do next. Rep. Jones says direct purchases or construction through appropriations—which some critics feel would be much more "inflationary" than lease-purchase—are the only answer. Jones referred this week to a General Accounting Office study that compares costs: \$1.35-billion for 149 projects under lease-purchase, by the time the government had paid not only 4% interest on construction cost but also interest on money to pay the long-term rents; only \$714-million for the same 149 projects through direct appropriations, without borrowing.

Another proposal is to raise the 4% interest rate. The Administration could do this without waiting for an O.K. from Congress.

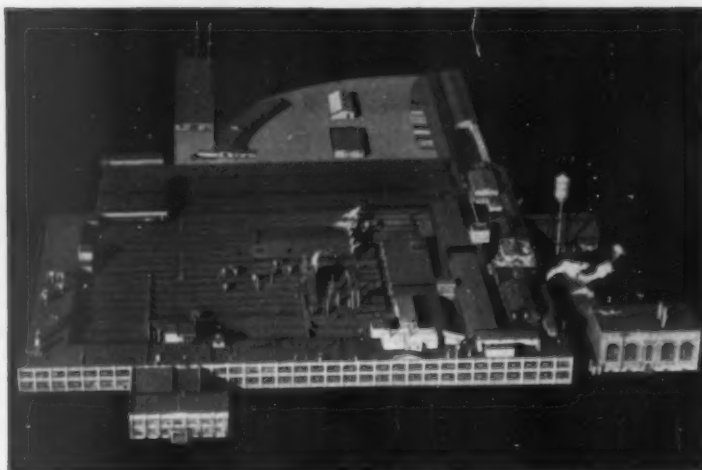
Sen. Francis Case (R-S. D.), ranking Republican on the Senate Public Works committee, has a complex answer. He introduced a bill last week to set up a federal agency to handle the floating of revenue bonds to finance not only government office buildings, post offices, and courthouses but also local public schools.

Whatever the outcome, Congress will try to take action to save the remaining 147 lease-purchase projects that have already been planned. Authority for the program expires June 30. **END**

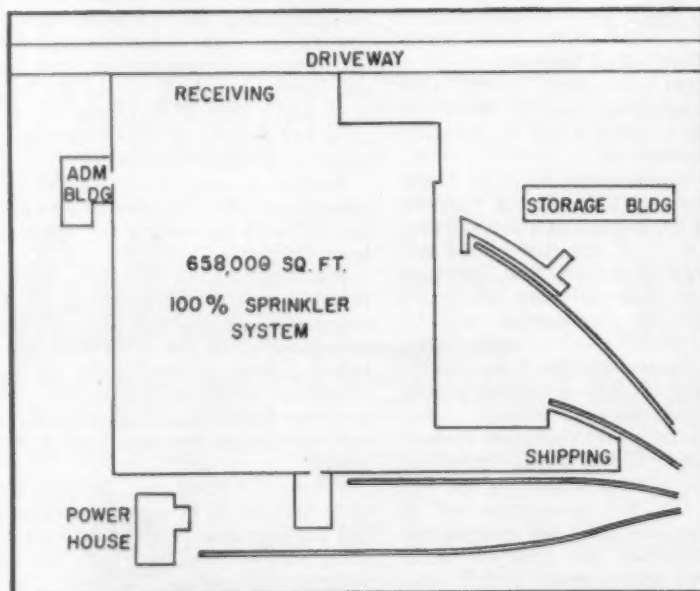
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LABOR

Racketeers Face the Music

● Initial hearings of Congressional committee indicate that labor leaders are in for a rough time.

● The scheduled parade of bootlegger, gambler, and call girl witnesses promises to add real spice.

● But by cooperating, AFL-CIO hopes to prove that the alleged corruption is limited, and will be stamped out.

The Senate's long-anticipated investigation of improper practices in labor and management, which opened on Capitol Hill this week, promises to be the long-run smash hit of the season.

The initial hearings on labor racketeering conducted by a select committee chaired by Sen. John McClellan (D-Ark.) drew one of the largest galleries since the Kefauver hearings a few years ago. National attention—inside and out of the labor movement—centered on the caucus room of the Senate Office Bldg. And as indicated in a preview (BW—Jan. 26 '57, p95), the opening scenes there hinted at exciting times ahead.

Whatever comes out of the hearings when they finally wind up—probably some time next year—labor seems to be in for a much tougher time than it had anticipated when leaders threw their support behind the investigation.

• **Repercussions**—Even before the open sessions began this week, the concern over what lies ahead had important consequences in union ranks. These were only a beginning. Without a doubt, many more are coming. They could have heavy repercussions throughout labor. But, in time, they are expected to leave the American Federation of Labor & Congress of Industrial Organizations a cleaner, firmly oriented, and potentially more effective labor body. Union leaders expect that. Because they do, they saw the opening of hearings this week with some relief. Like a painful surgical probing, labor regards the investigation as a vital step toward a cure.

• **In the Spotlight**—Not unexpectedly, the opening days of the hearings produced Kefauver-like testimony that made headlines which made all labor squirm. Senate investigators focused their spotlight on activities of the International Brotherhood of Teamsters in the Northwest.

In the opening sessions this week:

• The committee probed for evidence that professional gamblers and racketeers sought to control law enforcement in the Portland (Ore.) area with

the aid and influence of local Teamsters officials.

• Witnesses testified that Teamsters leaders allied with those who controlled pinboard and shuffleboard machines to force taverns to put in machines on a lease basis or risk difficulties over Teamsters deliveries.

• A local Teamsters official from Spokane testified reluctantly that he was pressed by international officers—including IBT Pres. Dave Beck—to make a number of low-interest, inadequately secured loans from local union to personal friends. The witness, a year and a half from a Teamsters pension, said he feared that the committee questioning might cost him his retirement pay.

• **Witnesses**—The testimony was a sample of what's to come. Those in the crowded caucus room will hear a parade of witnesses including bootleggers, gamblers, and call girls before this phase of the Senate investigation is completed in about three weeks. A chart in the corner of the hearing room lists 48 scheduled witnesses.

The Senate select committee also plans a close look at other Teamsters activities from coast to coast, and spot investigations into several construction union locals. In time, the scope of the hearings will be greatly expanded. Investigators are in the field now, looking into the validity of charges and complaints. And as revelations come out of the open sessions in Washington, more reports on suspect practices are expected from employers and individual workers who are now holding back—to see what develops.

• **Defense Strategy**—From the headlines, it may sound as though corruption and racketeering are widespread through the union movement. But by cooperating, AFL-CIO hopes to bring out through the hearings that this isn't true—that there is only limited corruption, and that labor is willing and able to stamp this out.

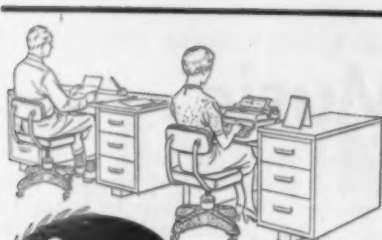
To lay the groundwork for such an argument, the federation and its unions have already started a cleanup. In

Miami Beach last month, AFL-CIO's executive council took steps to make possible policing actions by voting for (1) a ban against union officials invoking the Fifth Amendment when called to testify on union activities; (2) a series of codes of ethics to govern union officials in most situations; and (3) a crackdown—with threat of suspension or expulsion—on three suspect unions, the Allied Industrial Workers, the Laundry Workers, and the Distillery Workers (BW—Feb. 2 '57, p109; Feb. 9 '57, p159). Since then:

• The International Ladies' Garment Workers' Union accepted the resignation of Sam Berger, head of a powerful ILGWU truck drivers' local in the garment industry in New York, for invoking the Fifth Amendment before a federal grand jury probing into racketeering charges in the industry. ILGWU and other unions announced that resignations will be expected any time in the future that witnesses show a similar reluctance to answer questions or produce records. Meanwhile, the American Civil Liberties Union and a number of attorneys and private citizens protested AFL-CIO's policy of penalizing union leaders for taking advantage of a Constitutional privilege—no matter what the situation might be.

• The three unions threatened with suspension by AFL-CIO for welfare fund malpractices undertook to clear themselves of charges against them. The Allied Industrial Workers, for instance, revoked the charters of four New York locals—one of which was criticized before a Senate committee earlier this year. Despite the new moves, signs still point to eventual expulsion. The AFL-CIO price for continued affiliation is the virtual elimination of all officers of the three unions. This requires action by the rank-and-file membership, possible only through mass resignations of officers and special conventions—perhaps supervised by the federation.

• Albert J. Woll, general counsel of AFL-CIO and of the Teamsters, resigned the Teamsters job. Woll came under fire in the federation last month for advising the Teamsters when a number of its leaders invoked the Fifth Amendment—although the policy of George Meany, president of the federation, was clearly in favor of cooperation with Congressional probers. Woll quit the Teamsters under what is understood to have been an ultimatum from Meany: AFL-CIO or IBT. Woll previously had given up his job as counsel for the Laundry Workers—one of the



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"... leaders fear labor is in for a rough time in many state capitals because of racketeering hearings ..."

STORY starts on p. 141

three threatened with suspension. He still has a number of other union clients, including the International Union of Operating Engineers—which is slated to appear before the McClellan committee later in its hearings. Meany's legal adviser on racketeering has been Arthur J. Goldberg, former CIO general counsel and now a special counsel for AFL-CIO.

• **Losing Ground**—It's doubtful that AFL-CIO can keep ahead, or even abreast, of Congressional disclosures of evils in the labor movement. Even with its new codes and the rule against use of the Fifth Amendment, the federation can't move fast; its constitutional safeguards for the autonomy of affiliates limit what it can do.

This is a problem troubling labor's leaders—and one that the AFL-CIO convention next November may be asked to cope with.

In the meantime, even though AFL-CIO and its unions have taken the initiative in cracking down on racketeering and corruption, they appear to be losing ground. Public sentiment is building up for regulatory laws (BW-Feb.23'57,p67)—and it's likely to continue swelling as publicity on questionable practices of some labor leaders spreads nationally.

Fortunately for labor, the hearings come at a time when there is little union trouble otherwise—and a bright outlook for labor-management peace. Otherwise, the impact of committee revelations might be greatly intensified.

As it is, possibly as a byproduct of the public attitude created by the earlier "preview" committee sessions, AFL-CIO officials are being queried more sharply than at any time in recent years on the pressure of steadily rising wages on prices.

• **State Impact**—The stiffening attitude toward labor isn't feared so much for its possible effect in Congress as for its possible impact on state legislatures. Almost all are in session this year. Particularly, the lawmakers are interested in welfare fund safeguards and—as in other recent years—in curbs on union shop contracts. AFL-CIO sees signs of "concerted drives to hamstring labor" in the states.

Union leaders fear labor is in for a rough time in many state capitals if racketeering hearings nurture an apparent public sentiment for union curbs. **END**

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Ohio SUB Test

Legislature gets two different bills to legalize payment of SUB and UC benefits at the same time.

A hard fight on the issue of supplemental unemployment benefits is shaping up in Ohio's legislature. Two bills have been introduced to legalize the payment of state and private benefits to idled workers in the same week. At least one more is in prospect. Since they differ importantly, the debate is certain to attract national attention.

• **Key State**—Ohio is the key state among those few in which idled employees are barred from receiving public and private unemployment compensation at the same time. This form of UC-SUB integration is prohibited by an administrative order of the Ohio Bureau of Unemployment Compensation. A state referendum in November, 1955, gave topheavy backing to such a policy. At the time, SUB contracts were limited to the auto industry. Since then, SUB plans have spread out to other fields. Willingly or otherwise, many Ohio employers have accepted supplementary unemployment benefits clauses.

But there is still a division among employers over whether integration should be legalized—and, if so, whether some limit should be set on the maximum amount an idle worker should be allowed to receive from state and employer in any week.

• **The Bills**—Two bills now before the House in Ohio illustrate the two viewpoints:

• One, favored by labor, would remove present legal restrictions against simultaneous SUB and UC payments. It was introduced by Reps. Ed Rowe (R-Akron), A. G. Lancione (D-Bellaire), and John J. Lynch (D-Youngstown). The sponsors issued a joint statement "that we do not believe that the state should interfere with the collective bargaining process. If an employer wants to provide that his employees should receive over and above what the state allows [as unemployment compensation] the state should neither prohibit nor set a limit upon what the worker can receive under such contracts."

• The second was introduced by two influential House Republicans, Robert L. Johnson, Medina attorney, and Charles W. Whalen, Jr., Dayton educator and businessman. This bill would legalize simultaneous UC and SUB payments, but would limit the total amount. Meanwhile, the Ohio Chamber of Commerce announced that another bill will be introduced, based upon the recommendations of its social

legislation committee and the proposals of other statewide trade associations.

• **GOP Backing?**—Political leaders and many in industry consider the Johnson-Whalen bill the one to watch. Both legislators have stature in Republican ranks in Ohio. Their proposal—framed, they say, to make state unemployment compensation workable and effective with present SUB plans—is considered to have at least tacit party support.

To the unions, it is "a move in the right direction," although they say the bill has "certain deficiencies" that make the Rowe-Lancione-Lynch measure "vastly preferable." The Ohio Chamber of Commerce predicts a "thoroughgoing discussion and analysis" of the Johnson-Whalen bill (H-B 223) in the legislature, and says that employers are "understandably divided" over some of its points.

• **What It Provides**—Under the Johnson-Whalen bill, an employee covered by an SUB contract would be entitled to receive up to 65% of his weekly take-home pay from state and private funds.

The employee could also receive up to \$12 a week from the state UC fund as an allowance for dependents—at \$3 each, with a wife counted as a dependent.

The bill specifically provides that the maximum to be paid jointly is 65% of weekly take-home, and that employers who negotiate SUB plans must maintain a 3% balance in UC reserve funds.

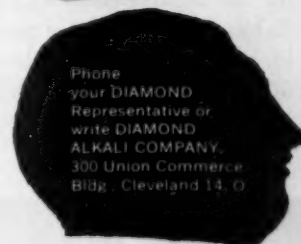
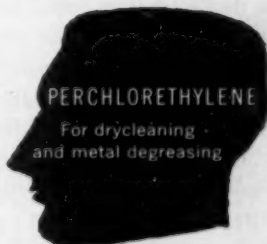
To Ohio unions, these provisos constitute "unnecessary interference by the state."

• **Natural Development**—Although the Johnson-Whalen bill came as somewhat of a surprise to many, others saw it as a natural development. Many of Ohio's major employers have negotiated SUB contracts since 1955—and, with their unions, have worked out a number of novel ways to allow supplementary benefits without running afoul of Ohio's UC law.

The Eaton Mfg. Co. and its union set up individual "income security" savings funds for its employees, giving each a vested right in the money in his account—and the right to draw on it in times of layoff to supplement state benefits.

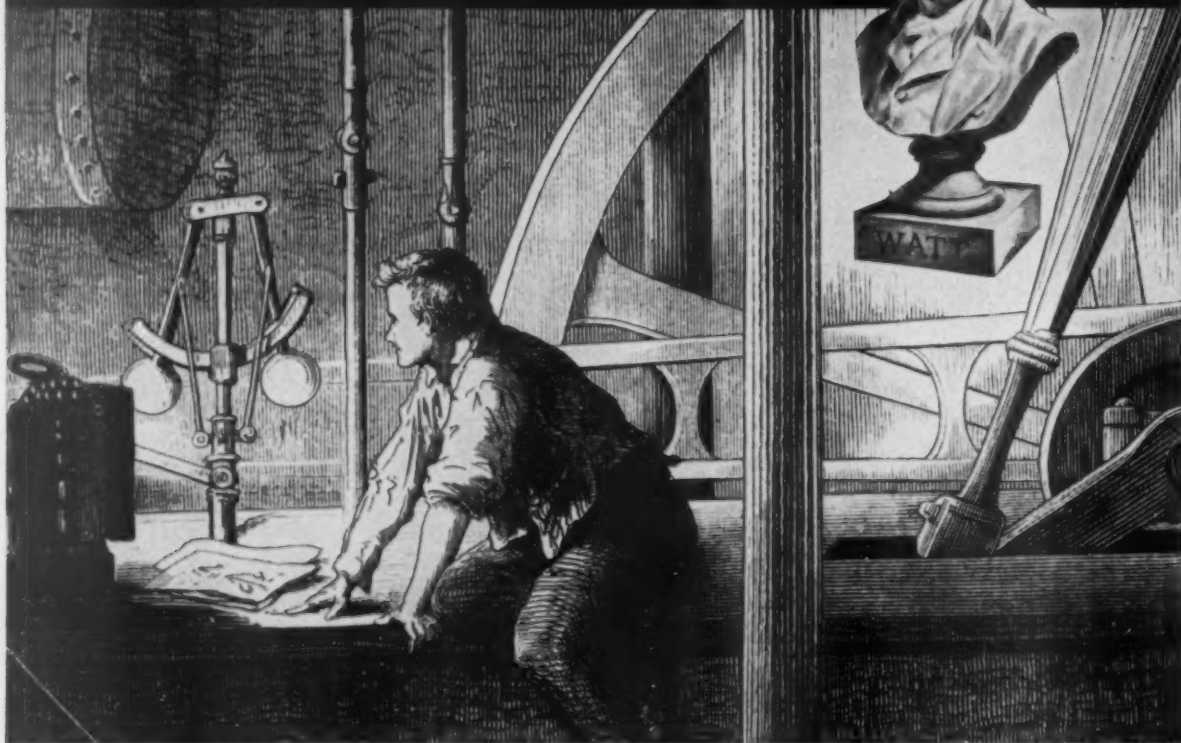
The glass industry worked out a similar vested interest, income security plan. And last year, the rubber industry and union devised another alternative. Idled workers collect UC benefits only until they either return to work or state benefits run out after 26 weeks. Then they receive a lump sum SUB payment equal to all the weekly supplements they would have received under an integrated payment plan. Some of Ohio's leading industries have indicated that they would prefer a straightforward approach to the roundabout versions. **END**

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Clash on Wage Law Coverage

Both Administration and Democrats want to bring more workers under wage-hour umbrella, but Democrats would go far beyond goal Administration thinks is practical.

Both the Eisenhower Administration and the Democrats favor bringing more workers under the federal wage-hour law—but they are far apart on how it should be done.

This became evident this week at the start of Senate hearings on amendments to the Fair Labor Standards (Wage-Hour) Act.

Secy. of Labor James P. Mitchell appeared before a labor subcommittee to present Administration proposals for changes in the law. The Democrats made clear at once that they have other, more far-reaching ideas.

The differences are important:

- The Administration would add about 2.5-million workers, most of them in large chain or department stores, to the 24-million now covered by the \$1 minimum wage provision of the wage-hour law—but it would not apply to the group at this time the requirement of overtime-pay after 40 hours in a week.

- Democrats, pressed by unions, want coverage extended to between 9-million and 10-million workers—located for the most part in retail and service trades, but including some classifications of agricultural workers. The Democrats would apply both the \$1 minimum wage and the overtime-pay guarantees of the law to the new group.

- **Labor's View**—In addition to greatly expanded coverage, labor also wants the present \$1 minimum raised to \$1.25 an hour. The contention is that the present level, put into effect in 1956, is inadequate at a time when the government's cost-of-living index shows costs are continuing to creep up slowly but steadily (table).

So far, however, the campaign for a higher minimum is being soft-pedaled in favor of demands for extended coverage. AFL-CIO, for example, argues that as long as 20-million workers are still outside the law, the federal wage-hour law must be considered "still unfinished business."

- **Mitchell Proposal**—According to Mitchell, the Administration agrees that Congress should now take further steps to "bring within the protection of a minimum wage employees now excluded who work in business enterprises that are substantially engaged in interstate commerce."

Specifically, Mitchell proposes extending the coverage of the minimum-wage provision of the law to companies that buy at least \$1-million in goods across state lines in a year and that

employ 100 persons or more. He estimates this would bring under the law 2-million employees of 2,200 retail stores—mostly chain stores or large department stores; 200,000 construction workers, 90,000 seamen, 65,000 in local transit systems, 50,000 hotel workers, 30,000 taxicab operators, and 15,000 telephone workers.

- **What It Would Do**—Under questioning by Sen. John F. Kennedy (D-Mass.), the subcommittee chairman, Mitchell acknowledged that most of the 2.5-million workers are already paid \$1 an hour or more. When the minimum wage went up from 75¢ an hour to \$1 last year, only 10% to 12% of those covered by the law got raises, he pointed out. Presumably, he said, about the same percentage of the new group would get raises.

The Mitchell proposal would apply particularly to "large chain store organizations and giant single-union department stores and other large retail establishments," he said. It would apply "whether [a store] operates in one state or has branches in several."

- **Arguments**—Formerly, the Labor Dept. advocated the extension of cover-

age to multi-state retail operations. The present proposal represents a change in thinking. Moreover, the department decided that basing coverage on out-of-state purchases rather than on sales would be more feasible.

Sen. Kennedy suggested that the Administration's proposals should be widened by (1) reducing the basis for coverage to \$500,000 in purchases across state lines in a year, or (2) making it depend upon either \$1-million in purchases or 100 or more employees, instead of on both requirements. Mitchell opposed going any further than the Administration proposed. For instance, he said, requiring overtime pay for the new group would be "very difficult for many enterprises" at this time.

- **Reactions**—Unions were "somewhat disappointed" in the Administration proposals. They wanted the law amended to cover all workers engaged in "any activity affecting commerce," a wording that Mitchell said would be "broader than any language ever used by the Congress for application of the commerce laws of the Constitution."

Retail industry spokesmen quickly attacked the Administration proposals, while conceding that they have general political appeal and will make the industry's efforts to preserve its exemption far more difficult.

The labor viewpoint will be presented to the Senate subcommittee next week, followed by the retail industry the following week. House hearings also get under way next week.

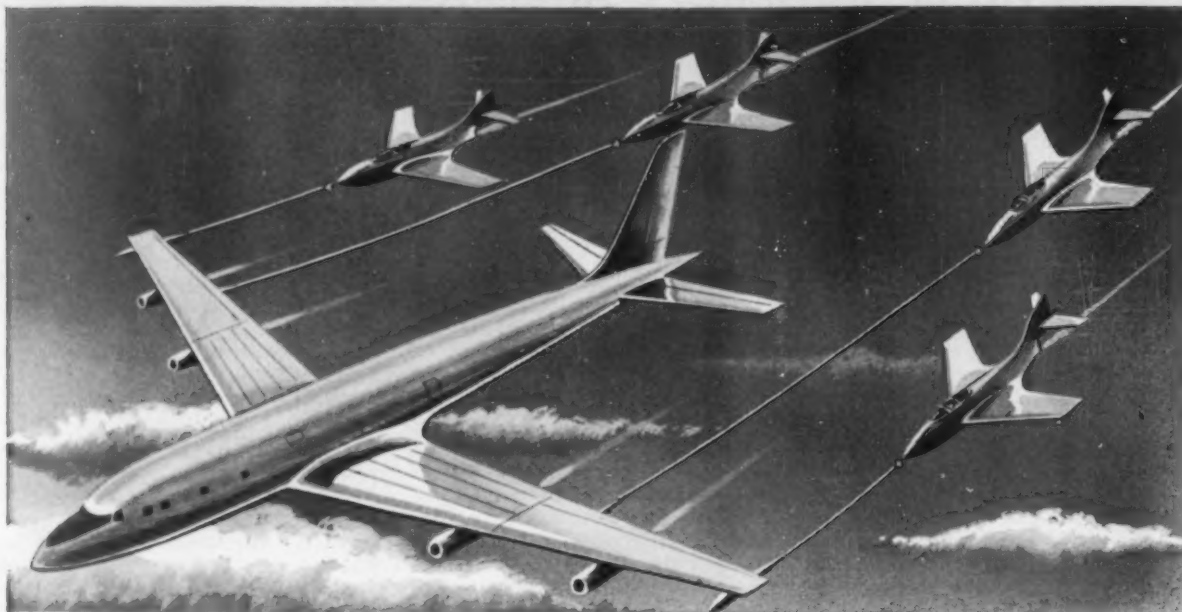
Cost of Living : What's Happening to It

	Total Cost of Living	1947-49 = 100			
		Food	Clothing	Housing	
				Total	Rent Only
January, 1949	102.7	101.4	102.7	103.6	103.3
January, 1950	100.6	97.0	96.7	104.4	107.5
January, 1951	108.6	109.9	103.8	110.4	110.6
January, 1952	113.1	115.0	107.0	113.9	116.0
January, 1953	113.9	113.1	104.6	116.4	121.1
January, 1954	115.2	113.1	104.9	118.8	127.8
January, 1955	114.3	110.6	103.3	119.6	129.5
January, 1956	114.6	109.2	104.1	120.6	131.4
February	114.6	108.8	104.6	120.7	131.5
March	114.7	109.0	104.8	120.7	131.6
April	114.9	109.6	104.8	120.8	131.7
May	115.4	110.0	104.8	120.9	132.2
June	116.2	113.2	104.8	121.4	132.5
July	117.0	114.8	105.3	121.8	133.2
August	116.8	113.1	105.5	122.2	133.2
September	117.1	113.1	106.5	122.5	133.4
October	117.7	113.1	106.8	122.8	133.4
November	117.8	112.9	107.0	123.0	133.8
December	118.0	112.9	107.0	123.5	134.2
Jan., 1957	118.2	112.8	106.4	123.8	134.2

Data: Dept. of Labor, Bureau of Labor Statistics.

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In Labor

• • •

Taft-Hartley Oaths, Boycotts, Union Shop Engage Supreme Court Attention

Non-Communist oaths, the secondary boycott, and the union shop figured in U. S. Supreme Court actions this week. The court:

- Agreed to hear a case testing the effect of union officers' refusal to file the non-Communist affidavits required by Taft-Hartley. In this case, John L. Lewis and fellow United Mine Workers officers refused to comply. As a result, the National Labor Relations Board ordered the Bowman Transportation Co., of Gadsden, Ala., not to recognize the UMW's catch-all District 50 "unless and until" it is formally certified as bargaining agent by NLRB. If the required oaths aren't filed, this certification could be withheld permanently. The case is being appealed from a lower court decision that NLRB has no authority to issue such an order.

- Refused to review an NLRB decision in a St. Louis secondary boycott case. NLRB's ruling prohibits the Amalgamated Meat Cutters & Butcher Workmen from encouraging butchers at work to boycott the products of Swift & Co.—whose salesmen the union is seeking to organize. But it doesn't rule out the union's urging at meetings and in publications that its members refuse to buy Swift products from unorganized salesmen.

- Denied an appeal by a trainman discharged under a Pennsylvania RR union-shop contract. The contract says that trainmen must belong to the Brotherhood of Railroad Trainmen or another labor body "national in scope" and organized in compliance with the Railway Labor Act. The man involved quit BRT in 1953, joined the independent and tiny United Railroad Operating Crafts. Following this, he was discharged. The Supreme Court ruled that the 6,000-member UROC doesn't qualify under the railway act.

• • •

AFL-CIO's IUD Adds New Members, But Faces Defection by Teamsters

The Industrial Union Dept. of AFL-CIO picked up five more unions at its executive board meeting in Washington last week, bringing total IUD membership to 7.6 million. The additions are the International Ladies' Garment Workers' Union; Pulp, Sulphite & Paper Mill Workers, International Brotherhood of Paper Makers, Commercial Telegraphers Union, and Bill Posters Union.

Each union affiliates for the number of its members employed in industrial occupations. ILGWU brought in 300,000 members, while the rest counted for a total of 165,500. Each month, the unions pay 2¢ for each member.

At the same time, a new fight broke out between Dave Beck, president of the International Brotherhood of Teamsters, and Walter Reuther, IUD president and

head of the United Auto Workers. Beck, Reuther said at the meeting, intends to withdraw all but 25,000 of the present 400,000 teamsters from the IUD. This would mean a cut of \$7,500 a month in IUD revenue. It would not, however, affect the truckers' standing in AFL-CIO. The move was seen as an attempt by Beck to shift his members to the AFL-CIO Building Trades Dept. to strengthen it in its jurisdictional fight with IUD over construction work.

Reuther declared that the Teamsters can't withdraw unilaterally, but must either prove a decline in industrial membership or financial difficulty—an unlikely event in the case of the trucking union—or pay its IUD dues. If it fails to do so in 90 days, IBT will be suspended from IUD. The result would be much the same as withdrawal.

• • •

Atlantic Coast Docks Bustle Again As Longshoremen Sign New Contract

Longshoremen are making dents in the huge backlog of cargo piled up in strike-bound Atlantic Coast ports this week. They're back at work after a vote by the International Longshoremen's Assn. membership to approve a three-year pact, calling for total pay raises of 32¢ an hour—18¢ the first year, 7¢ each the next two.

In addition to pay hikes, dock wallopers get a total of five paid holidays—two the first year, one the second, and two the third, a third week of vacation for qualified workers, and an increase of 5¢ an hour for each man in the employers' contribution to the welfare fund.

In New York, the agreement calls for a check-off of membership dues by the shipping companies to be paid to ILA headquarters instead of to the local unions, as has been the custom. This is expected to give the international greater control over its often rebellious locals in efforts to rid itself of corruption and racketeering.

Employers did not grant key union demands for eight hours' guaranteed pay for each man called to work and a maximum sling load of one ton.

The Atlantic Coast pact—affecting some 45,000 men—applies only to wages, pension, welfare plans, and hours.

• • •

BLE Balks at Merger With AFL-CIO Rail Union

Merger of two major railroad unions—the Brotherhood of Locomotive Firemen & Enginemen (AFL-CIO) and the Brotherhood of Locomotive Engineers (Ind.)—now seems doubtful. Faced with shrinking membership, the BLF&E broached coalition to BLE (BW—Feb. 23 '57, p82). This week BLE's answer came in a letter from Grand Chief Engineer Guy L. Brown to H. E. Gilbert, BLF&E head: a courteous but firm "No."

Brown stressed that anti-merger resolutions were passed at the union's 1950 and 1953 conventions. So, he said, "I have no power or authority to further consider any plan of amalgamation of the two organizations." The next BLE convention, where the merger issue might be raised, is in 1959.



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The financial highlights in the adjoining column tell the story of another "good" year. In our annual report we have tried to tell the story of the people that made this progress possible. We will be happy to send you a copy.

FINANCIAL HIGHLIGHTS

	At December 31	
	1956	1955
Property and plant.....	\$224,218,000	\$201,738,000
Capitalization	\$173,142,000	\$170,688,000
Capitalization ratios—		
Common stock equity....	38.3%	37.4%
Preferred stock	14.4%	14.6%
First mortgage bonds ...	47.3%	48.0%
	100.0%	100.0%
Number of shares—common stock..	2,629,037	2,619,256
	For the Year	
Operating revenues.....	\$ 73,527,000	\$ 68,023,000
Earnings on common stock.....	\$ 10,010,000	\$ 8,798,000
PER SHARE OF COMMON STOCK		
Total taxes	\$5.92	\$5.49
Earnings	\$3.81	\$3.36
Dividends paid	\$2.25	\$2.05



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THE MARKETS

Wall St. Talks . . .

. . . about S&Ls fight on boosting saving bond interest . . . snub to small stockholders . . . "inventory" pains.

The S&Ls are flooding Congress with objections to the Treasury's plan to boost interest rates on savings bonds, according to Street reports. The savings and loan groups seemingly fear that a discretionary interest ceiling of 4½% might make the savings bonds a painfully competitive medium for savings.

Stockholders with less than 10 shares are still scorned by some companies, even though Wall Street is scrabbling for "grass roots" clients. One company recently suggested to 43,700 less-than-10-share stockholders that they round out their holding to 10 shares, or else sell out entirely. Among the group, some 15,500 elected to become 10-share holders; 5,900 decided to bow out.

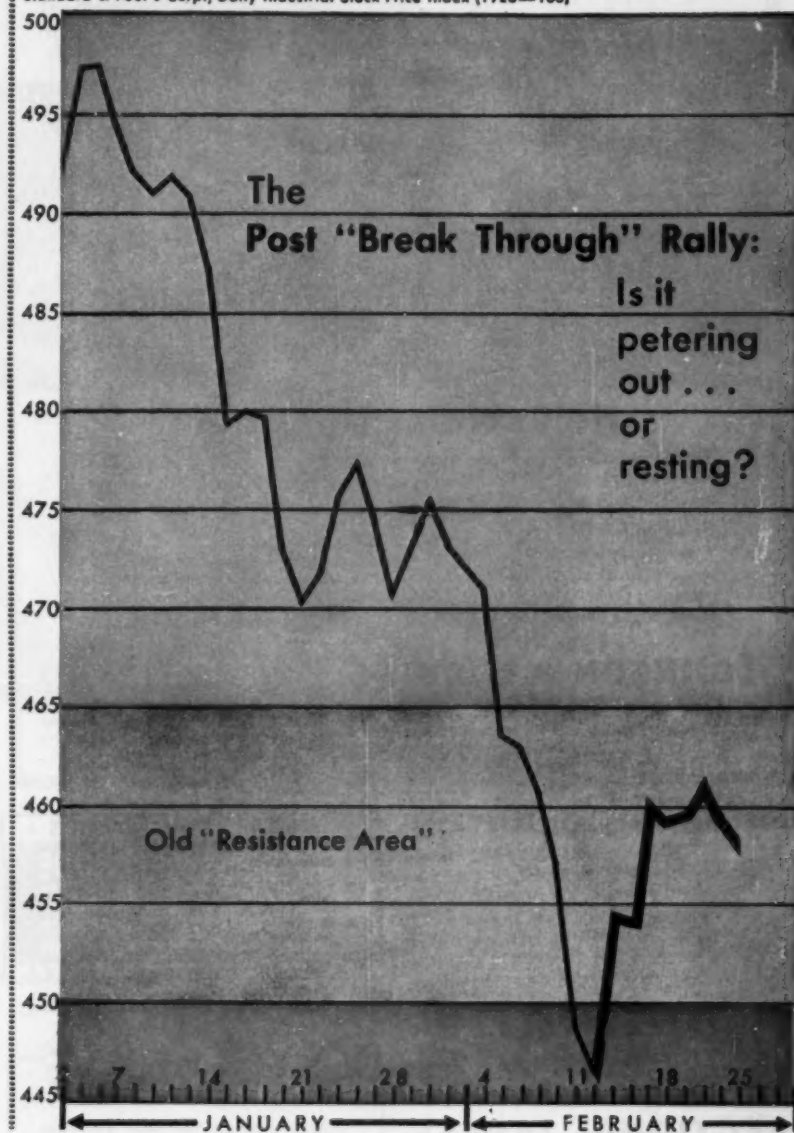
"We are in a curious phase" with many people both "talking about inflation and worrying about recession," says the Street's Aubrey G. Lanston & Co. The firm goes on to say that the last recession, in 1953-1954, was largely due "to a work-off of large inventory accumulations" and many think that we "may again be moving into another period of inventory adjustment. We have, however, also been accumulating some very large 'inventories' of plant and equipment" and "readjustment to excess 'inventory' of capital goods can be a very painful process indeed."

Rail borrowings via equipment trust certificates have been shooting up. So far this year more than \$64-million certificates have been sold, with another \$50-million coming soon. Over-all, the pace tops last year's by about 20%.

Who says lendable funds are scarce? One advertiser, asserting that "an opportunity for upper income investors lies in the purchase of Treasury bonds at their present deep discounts," goes on to say that "we can make funds available for this purpose at reasonable terms."

A "mild variety of buyers' strike," due to high prices, seems under way in autos, housing, and appliances. That's what Pres. M. K. M. Murphy of the Federal Home Loan Bank of N. Y. told his stockholders last week.

Standard & Poor's Corp., Daily Industrial Stock Price Index (1926=100)




Still Not Out of Woods

Though stocks have made some recovery since the mid-February slump, they haven't shown any real "rally spirit" yet.

Stock trading on the Big Board slumped early this week to levels that were unusually low—even for recent weeks. But Streeters, both bull and bear, were more attentive than ever to the ticker. Their problem: trying to decipher some meaning from the market's discouraging recent breakthrough to new low ground (chart, above). Is it really a distress signal—or something much less serious?

Unfortunately, the results of all this careful conning were barren. On balance, the limited action early this week turned out to be quite selective—and without much over-all significance. So, by midweek, neither bull nor bear had the satisfaction of an answer to the question—which has been nagging at them ever since mid-February, when the market crashed decisively through a generally recognized "bear market signal area."

• **Troubles**—There is agreement among bulls and bears that the market does seem to have fulfilled certain technical requirements of good behavior. After dropping to the lowest level since the



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This Johnson & Higgins specialist is explaining to the supervisory personnel of a leading industrial firm the benefits employees can expect under their new Thrift Plan invested, in part, in Company stock.

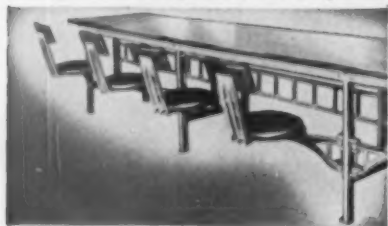
He's a professional consultant from our Employee Benefit Plan Department—one of the largest of its kind in the world—and this is just one of many services he performs. Whether your company is primarily interested in pensions, profit-sharing, major medical expense benefits or any other form of employee benefit, you can get experienced, professional help from J&H.

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BUSINESS WEEK

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latter half of 1955, it bounded resiliently—and almost at once—back to the upper regions of the old resistance area.

But it's disturbing to many observers (including some of the bulls) to note the conspicuous absence of any real "rally spirit" lately except with one or two individual stock groups, particularly oils.

Actually, as the chart on page 149 shows, almost all the gains now showing up were registered in but two daily trading sessions two weeks back—immediately after the breakthrough. And on most days since, prices in general have at best rallied only feebly. Just as frequently, they have tended to drift lower.

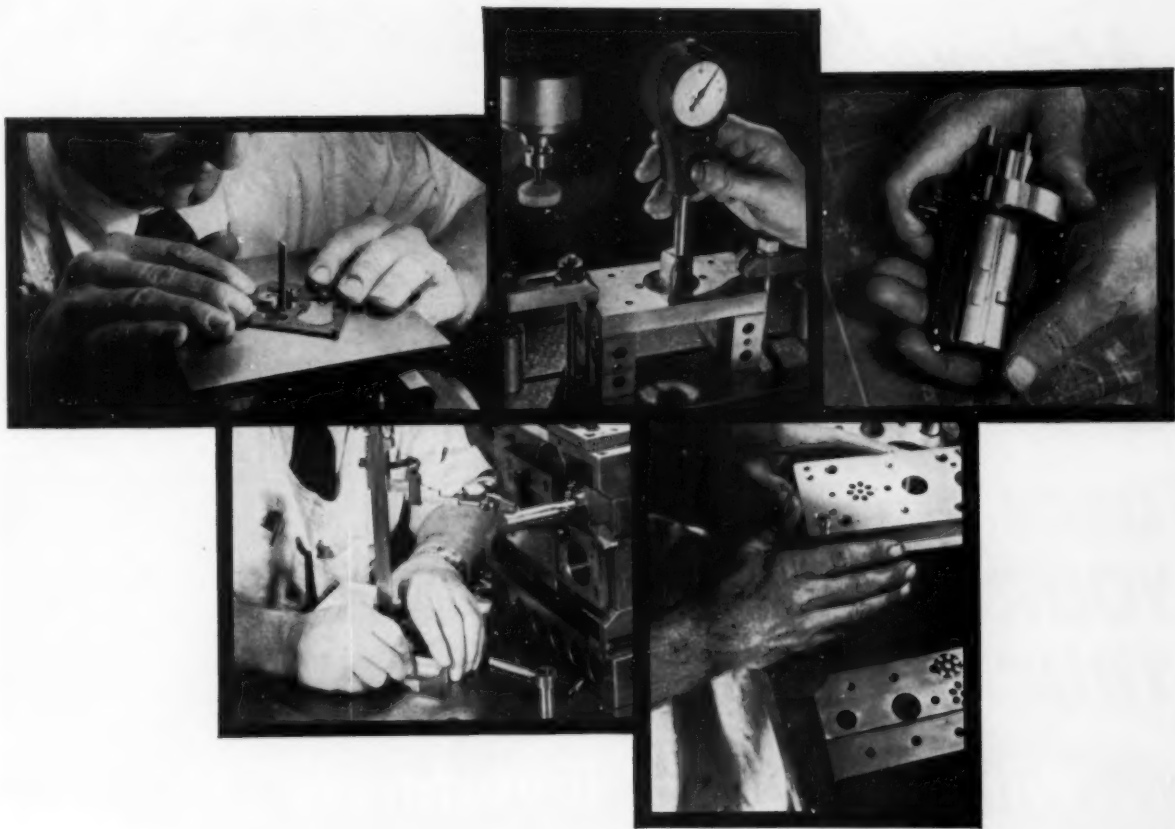
• **Two Views**—Of course, it could be that the market is only resting from its recent rally, not giving up. Indeed, that's the claim of most bulls. They see the market—beneath the surface—as gathering solid strength for a sharp further advance.

To the bulls, in fact, the persistent drop in stock prices since last summer very much resembles the weakness of January-September, 1953. And that was followed by one of the most profitable up-swings the Big Board has ever known.

All in all, though, the Street still appears bearish. And to the partisans of this point of view, the bulls' thinking is just "whistling past the graveyard." Before the market can behave in any such fashion as the bulls envision, say the bears, the mid-February low must be put to a real test. They expect the test to come before long—and to fail. If these predictions turn out to be correct, it will be another confirmation of their view that the market, since early last August, has been in the initial stages of a full-fledged bear movement—not just suffering a temporary relapse.

• **Mixture**—It remains to be seen whether the bears are too gloomy. Moody's, for one, thinks they are. The recent "turnaround in prices looks more convincing than it did at its outset" and "a month or more of better market may logically be expected now," this organization says. However, it tempers this cheer by adding that "a better market at this time" does not "signify that a longer term upturn is commencing now." And it expects that "lower average stock prices will be seen later this year."

In the opinion of Standard & Poor's, "an uninterrupted advance in the market can hardly be expected." But it adds encouragingly: "While prospects do not argue persuasively for indiscriminate buying, they justify reasonable representation in stocks, including careful expansion . . . where holdings are less than adequate." **END**



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PERSONAL BUSINESS

BUSINESS WEEK

MAR. 2, 1957



"Airplane for hire" is the basis for a booming new business—one that your social, fraternal, business, or church group might do well to look into. Group charter of a private plane is by no means so expensive as you might think, and it offers many conveniences. In some cases it's actually cheaper than commercial airline travel.

Any organized group that has more in common than the desire to travel from here to there can charter a plane. But you can't resell seats to strangers—that would put you illegally in the airline business.

Typical examples of groups that charter planes are business clubs heading for conventions, organized sports fans (such as alumni associations) following their teams on tour, social clubs bound for the Indianapolis Speedway, the Kentucky Derby, or simply a long weekend at a resort.

A chartered plane has many advantages for group travel. You can often leave from a convenient local airport that doesn't offer commercial service. You can set your own timetable and route. Your group travels as a unit, and luggage is loaded and unloaded at your convenience.

If you can line up a big enough group to take full advantage of economies, the cost is surprisingly less than regular airline fares.

From a major airline, for example, you can charter a 58-passenger DC-6B (four engines) for \$2.50 a flight mile. If the plane must be flown in to your point of departure, you pay an added "ferrying charge" of \$1.30 per mile for the flying-in distance. For idle time at your destination, you also pay a layover charge of \$50 an hour up to \$500 a day.

Thus, a group of 58 members could fly, say, from New York to Miami and back, with a two-day layover in Miami, for slightly less than \$115 per person. Standard airline first-class fare on this run is \$145 round trip. On a plane chartered from a non-scheduled airline, the saving would be greater.

Major airlines will charter planes when they get a chance, though they don't push for this business. On charter flights they offer the same equipment and service as they do on comparable regular commercial routes.

Charter specialists include many small non-scheduled airlines that got their start in the past 10 years or so, working for the military. Most are represented by two associations that coordinate charter bookings:

- **The Aircoach Transport Assn. (ACTA)** represents more than 30 carriers with a combined fleet of 45 planes. It has offices in New York, Newark, Washington, Columbia, S. C., Chicago, Ft. Smith, Ark., San Antonio, El Paso, Burbank, Oakland, and Seattle.

- **The Independent Military Air Transport Assn. (IMATA)** represents 11 carriers with a total of 65 planes. It gets its name from major activity in military charters. You can contact IMATA by writing to 1025 Connecticut Ave. N. W., Washington, D. C.

Rates and services of both groups are about the same. Non-skeds must meet Civil Aeronautics Board and Civil Aeronautics Administration standards for personnel, equipment, maintenance, and safety rules. Equipment is generally older than that of the major airlines. The non-skeds offer coach-type accommodations and service. A stewardess serves meals—at least box lunches—in flight without extra charge. Also, the plane's owner usually covers liability with, at least, \$50,000 of insurance per passenger.

Sample costs: A DC-3 with 24 seats can be chartered by one to 24 persons for about 85¢ per flight mile. Ferrying charge, if any, is 60¢ a mile;

PERSONAL BUSINESS (Continued)

BUSINESS WEEK

MAR. 2, 1957

layover runs \$100 a day. A C-46 (44 seats) costs \$1.15 a mile, 95¢ ferrying, \$200 a day layover; a DC-4 (up to 72 seats) costs \$1.85 a mile, \$1.45 ferrying, \$300 a day layover.

Non-skeds claim that total cost, without ferrying charges, can be as low as 2½¢ or 3¢ a passenger mile, compared with around 6¢ on scheduled flights.

Air taxi service is the best bet for a small group going on a short hop. It offers comparable convenience, plus the luxurious feeling of having a private plane at your beck and call. Air taxis can waft you from your small local airport to a major airport for plane connections, take you on short-run business trips, serve as an air ambulance, or help you make the maximum use of your family's vacation time.

The air taxi industry includes about 1,300 active licensed operators, all under Civil Aeronautics Board regulation.

Costs for the commonest types of planes—the three-passenger, single-engined Cessnas, Pipers, or Beechcraft average about 20¢ a mile. A few planes up to six or seven passengers may cost 75¢ a mile. You pay for the mileage to your destination and back again, even though you fly only one way. Operators charge \$5 an hour for layover, for the smallest single-engine plane, but they usually give one hour of free layover for each 100 miles to your destination.

The 150 members of the National Air Taxi Conference—as well as many others—carry liability insurance up to at least \$40,000 per passenger. But play safe and check before you ride. Also, count on this as a day-time service; most taxis don't fly after dark or in "instrument" weather.

If you're planning to take to the road this spring, here are some new four-lane turnpikes to keep in mind as you criss-cross the country:

- **The Florida Sunshine Parkway**—108 mi. between Ft. Pierce and Miami—has just opened. Speed limits: 60 maximum, 40 minimum. Along the route you'll find three gas stations, two snack bars, and one restaurant. Toll (one way per car): \$2.40.

- **The Trans-Indiana Turnpike** sweeps 156 mi. across the northern end of the state—from Hammond to the Ohio Turnpike. Speed limit: 65 mph. Toll: \$1.95. This new link gives you an unbroken 830 mi. of fast turnpike driving between Chicago and New York. Tolls for this entire trip: about \$11.

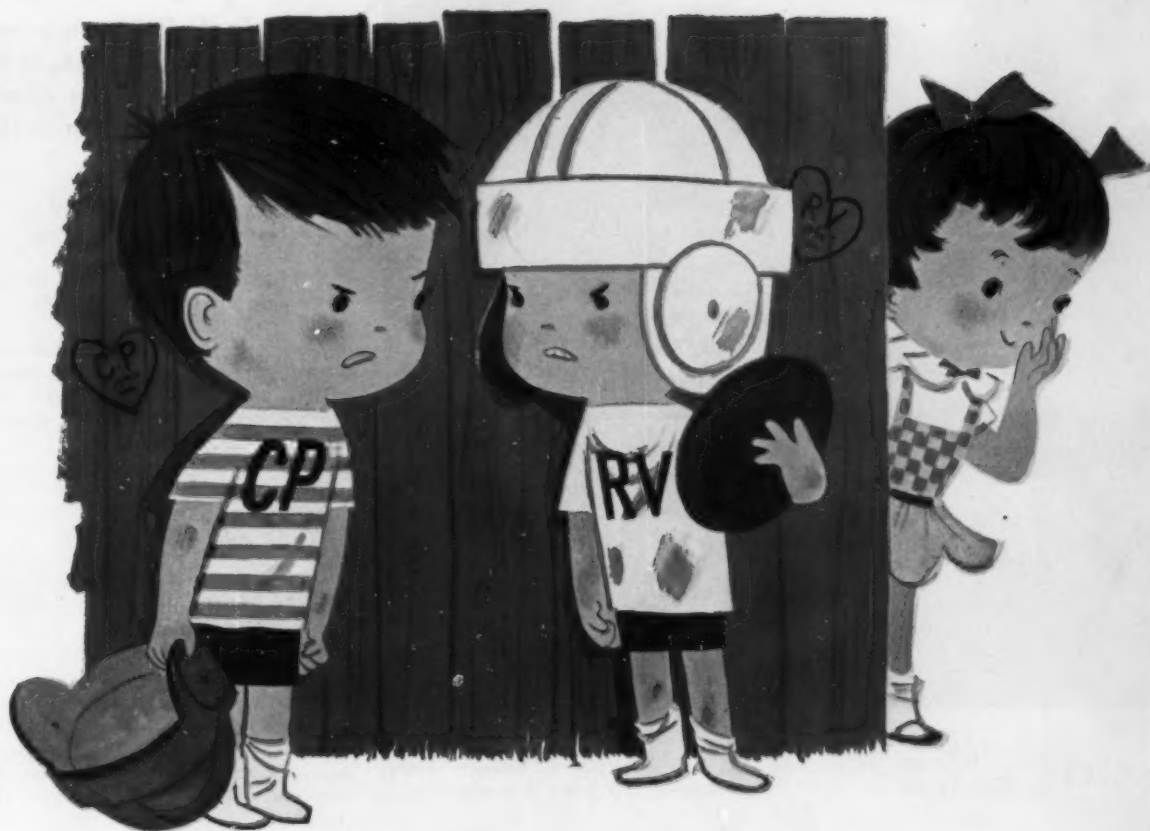
- **The Kansas Sunflower Turnpike**, 236 mi., connects Kansas City, Topeka, Wichita, and the Oklahoma line (near South Haven, Kan.). Minimum speed: 40 mph. There's supposed to be no fixed maximum, but you might get a ticket if you go past 80. Toll: \$3.80.

- **The Kentucky Turnpike** gives you a fast 40-mi. stretch between Louisville and Elizabethtown. Speed limit: 60 mph. Toll is 60¢.

Trick diets won't cause or cure arthritis, though a special diet is sometimes included in treatment of the disease. A new booklet on the subject is worth reading—it debunks false claims and gives hints on what an arthritis sufferer should eat. It's available, free, from your local chapter or the national office of the Arthritis & Rheumatism Foundation, 23 West 45th St., New York 36, N. Y.



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United States Rubber



BOSSSES Chmn. R. Gwin Follis (above) and Pres. Theodore S. Petersen (below) are freed for the job of long-range planning and policy determination.



MANAGEMENT

Why a Big

Standard of California's new Western Operations, Inc., is the end product of a major administrative reorganization within the parent company.

Early this year Standard Oil Co. of California dropped 25,000 employees from the payroll.

But hardly anybody noticed. Reason: They were picked up right away by a brand-new subsidiary.

To Standard's customers and to most of the employees, it was a mere change of hats. To the men who run the company, however, it was the culmination of a 10-year decentralization process that frees them to do the job they're paid for—long-range planning and policy determination.

From a hybrid that functioned partly as a holding company, partly as an operating company, Standard has been transformed into a pure holding company. Chmn. R. Gwin Follis, Pres. Theodore S. Petersen, and the tight little knot of executives around them are divorced from day-to-day local operations.

A traditional arrangement that makes Follis responsible for Eastern Hemisphere operations and Petersen for Western Hemisphere activity still stands.

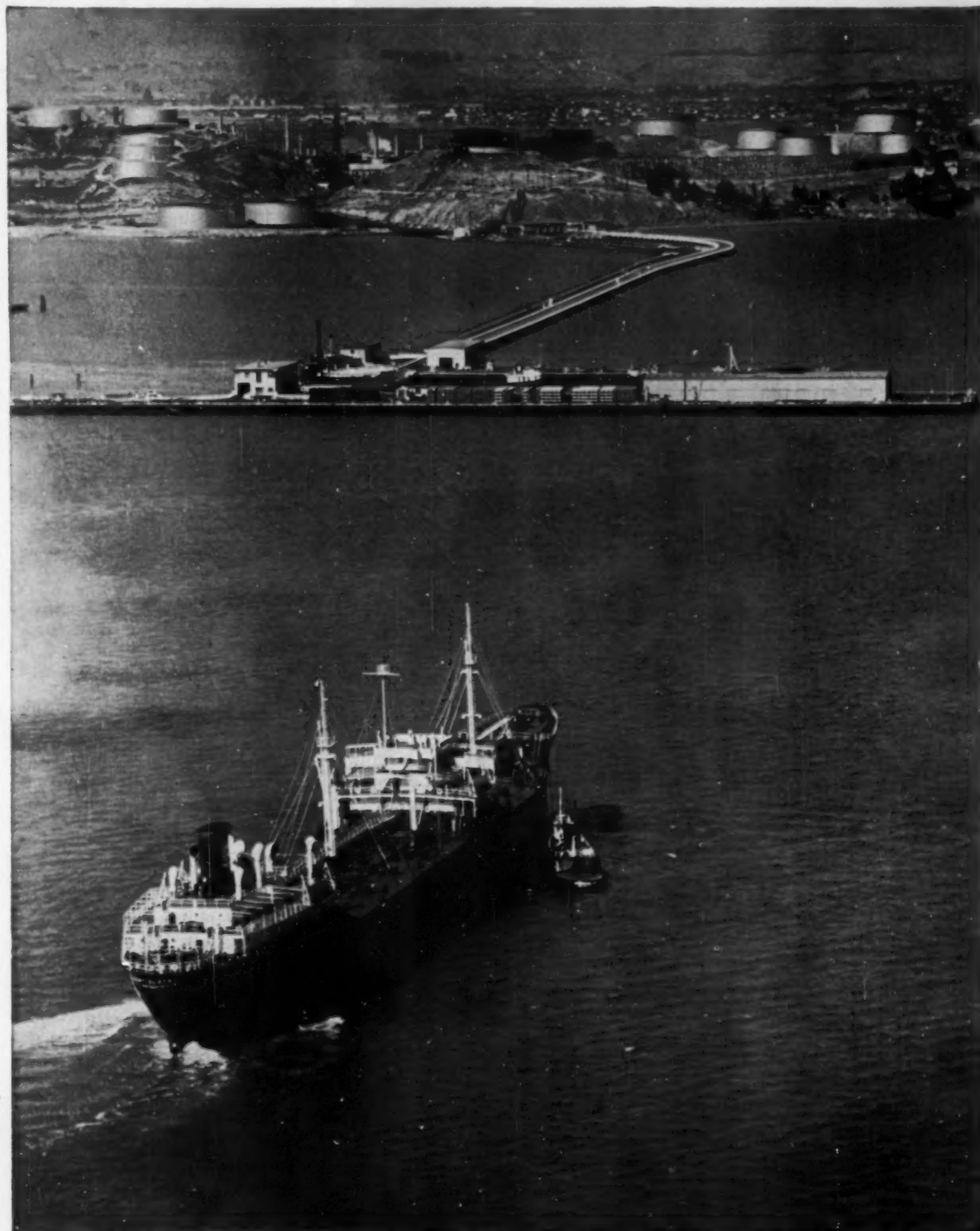
I. An Eventful Decade

Roots of the big San Francisco-based oil company go back more than 80 years into California soil. Though in early days they were limited to that state alone, they subsequently spread in one form or another to 40 states, three U. S. territories, three Canadian provinces, several South American countries, and to some 70 nations in the Eastern Hemisphere. By common yardsticks, Standard Oil of California ranks sixth in size among oil companies.

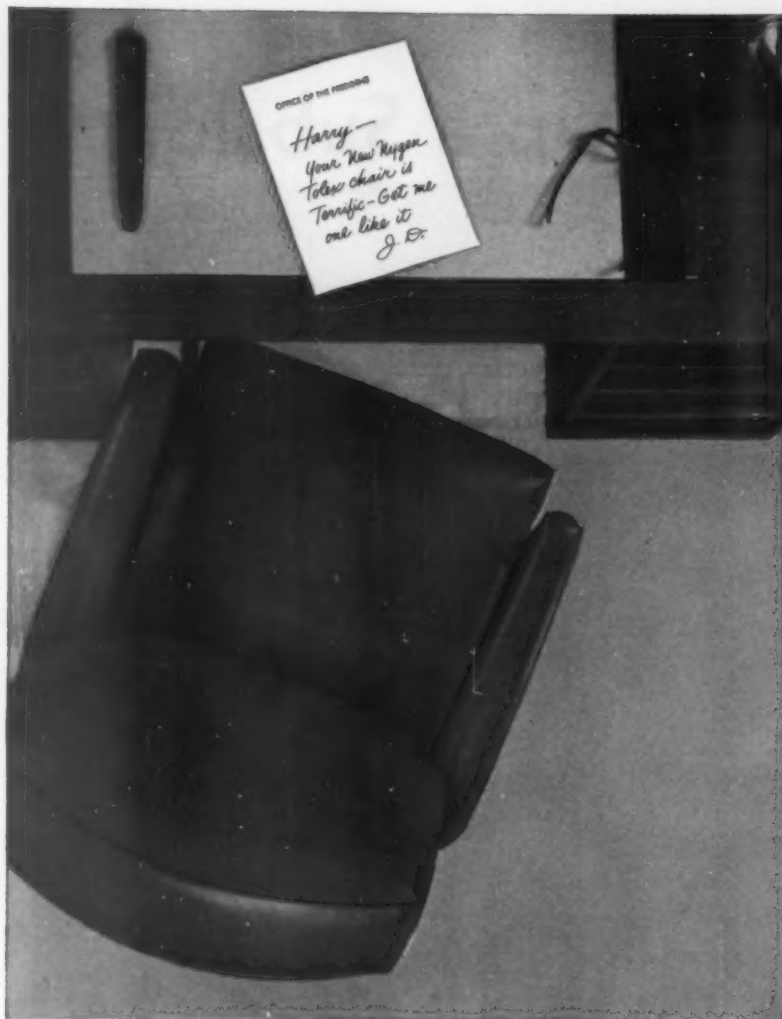
For a variety of reasons, the past decade has been the most glitteringly eventful one in the corporation's history. Both revenues and net profits have quadrupled since the war. One reason, of course, was the pent-up demand for oil products that was released with a whoosh when the war ended. Another was Standard's aggressive diversification and expansion backed up by capital and exploratory expenditures of close to \$2-billion in 10 years.

• **Foreign Gambles**—In this past decade, Standard's investments in the Eastern Hemisphere, dating back to

Oil Company Set Up a Subsidiary



REFINERY and wharf in San Francisco Bay at Richmond, Calif., is one of main operating properties of the new subsidiary.



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Story starts on page 156

1929, began to pay off. The gambles began with the Bahrain Island concession in 1929, spread into Saudi Arabia in 1933. Standard sold pieces of both concessions to other oil companies, retaining half of one, 30% of the other. In 1936, it embarked on a highly profitable 50-50 marketing venture with Texas Co. in the Eastern Hemisphere, and this has developed into a fully integrated oil company, California Texas Oil Co., Ltd. (the Caltex group). The San Francisco company also owns 7% of the Iranian Consortium.

Standard's investment in these jointly owned foreign properties reached \$75-million at its peak. The company received not a penny of return for 18 years. But since 1947, Standard has recovered its investment several times over.

• **Reshuffle**—In the same decade, California's role as a supplier of oil and natural gas underwent diametric change. Once a net exporter, California now was importing oil and gas to meet the postwar demand of both industrial and private consumers.

Where California in 1945 supplied 68% of Standard's crude production, by 1954 it was supplying a scant 19% of the company's 150% greater production, while Eastern Hemisphere affiliates were supplying more than 50%.

• **New Records**—Domestically, Standard and its subsidiaries also broadened their search for crude—into the offshore areas of the Gulf of Mexico and the California tidelands and into western Canada. New refineries and pipelines were built; old ones were beefed up and modernized.

Standard's industrial and agricultural chemical subsidiaries pushed up their sales from \$8-million in 1945 to \$72-million in 1954, and they've just begun to turn on the steam. Last year, the industrial chemical subsidiary, Oronite Chemical Co., built the first plant in the U.S. to make isophthalic acid, an intermediate chemical for improving the properties of plastics and surface coatings.

At last count, Standard had more than 36,000 employees in its wholly owned companies, 3,375 miles of pipeline, 27 seagoing tankers. Its products were sold in 13,600 U.S. service stations, including 2,300 on the Eastern seaboard and 1,100 in the West that are owned and operated by a subsidiary, Standard Stations, Inc.

On the balance sheet, the net effect of these far-ranging ventures was something to warm a stockholder's heart. While revenues and earnings were quadrupling in the past decade, total assets rose from \$785-million to around \$2-billion. Somebody of statistical bent

calculated that 100 shares of common bought for \$5,000 in 1946 are worth, after two stock splits and a few stock dividends, around \$22,000 at today's prices—not counting some \$5,000 cash dividends paid in that period.

II. The Weak Link

Follis, however, was aware that the company's management structure had failed to match strides with the physical growth.

When federal trustbusters in 1911 broke up the old Standard Oil combine, Standard of California was splintered away from its Eastern sire. It was an integrated oil company, producing, refining, and marketing its wares in the states west of the Rockies, in Alaska and Hawaii, and on the western coast of Mexico.

As additional properties were established or acquired outside this territory—in the Rocky Mountain states, along the Gulf, on the Eastern seaboard, in western Canada and South America—they were incorporated as subsidiaries, wholly owned and rigidly controlled by San Francisco headquarters. The same was true of the company's pioneering operations in the Middle East, now owned jointly with other oil companies.

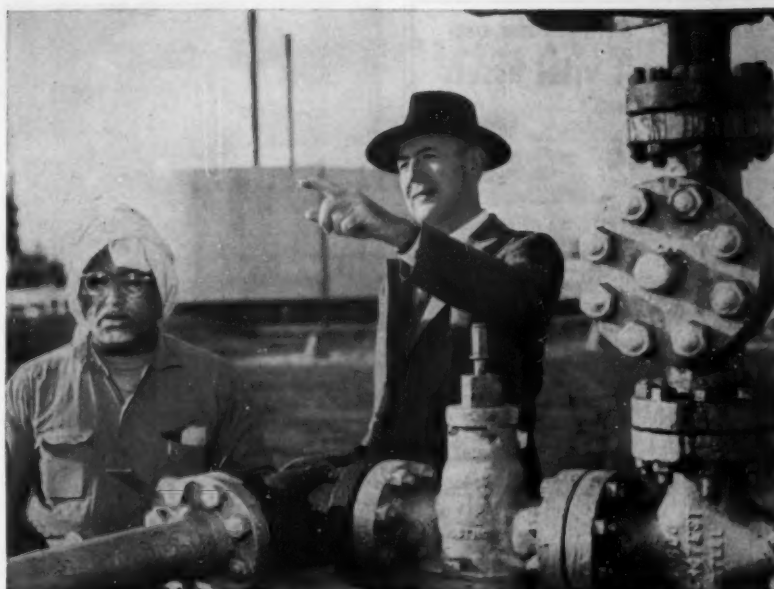
- **Chain of Command**—Sheer size and geographical dispersion were in themselves persuasive arguments for a close re-examination of the chain of command. Up to the middle levels of management, the company had smoothed out the lines of authority with a comprehensive manual of job descriptions. Everybody knew that Chmn. Follis was chief executive officer and looked upon Pres. Petersen as his right-hand man.

Around these two was gathered a group of vice-presidents whose authority was both undefined and unquestioned.

- **Dual Status**—Within a single operating entity, such fuzziness of focus can be confusing but manageable, particularly in a closely knit, almost inbred, group of men accustomed to working together. In fact, the informality of such a working arrangement has the appeal of simplicity to recommend it.

But Standard of California was an organizational complex with these two outstanding features:

- It was a holding company, sole owner of more than a score of operating subsidiaries blanketing much of the U.S. and spreading into other parts of the Americas. It also owned from 30% to 50% of those four big operating companies in the Eastern Hemisphere—Arabian American Oil Co., Bahrain Petroleum Co., Trans-Arabian Pipe Line Co., and California Texas Corp. These companies, domestic and foreign, among them have spawned a great proliferation of subsidiaries.



EMPLOYEE of Arabian American Oil Co. in Saudi Arabia meets the boss, R. Gwin Follis. Standard of California now owns 30% of the Saudi Arabian oil concession.

- It was also an operating oil company, the biggest in the Far West. Although Standard publishes only consolidated figures, it's generally supposed that operations in the West account for about one-third of the corporation's net profit. On last year's gross revenues of \$1.4-billion, the net profit on worldwide activities could have reached \$260-million, of which about \$86-million would represent Far Western earnings.

III. Overloaded Management

The awkwardness of Standard's dual status came to light in the increasingly heavy tax it imposed on the time of the corporate officers. At one stage, as many as 28 departments were reporting to Follis, Petersen, and the executives around them.

Compounding the problem was the inescapable fact that operating heads of subsidiaries never would hit full executive stride so long as they depended on somebody in San Francisco to make their decisions and assume the responsibility for them.

- **Search for a Pattern**—Follis had access to a staff department that was recognized by the professional management cult as an innovator in modern organizational techniques (BW—Aug. 6 '49, p.30).

There were plenty of patterns to follow if Standard were willing to accept somebody else's solution. In fact, Gwin Follis' ultimate choice was one closely resembling that of Standard Oil (N. J.). But the California men were trying to cut the cloth to the figure, not the figure to the cloth.

- **Problems of Evolution**—Ultimate

emergence of a straight holding-company pattern was foreshadowed three or four years ago. But its evolution posed some problems, all revolving around the company's big operating property in the seven Western states. This property was in the anomalous position of being both parent and offspring.

This western property was in itself a fully integrated oil company. Its officers grappled with the day-to-day problems of where to explore for new crude supply, how much to pay for purchased crude, how much to charge for the finished product, how to bust up the hydrocarbon complex to get the best yield. Then they changed hats and tackled similar problems for subsidiaries thousands of miles from San Francisco.

Around them they had built up strong staff departments—tax, credit, engineering, medical, organization, public relations, economics, and a multitude of others—that also served the two masters.

- **Specter**—If the western operating property were cut adrift as an autonomous subsidiary, how would the services of those staff departments be parceled out? Follis knew that the parent corporation couldn't get along without them. Neither could the western company.

Suppose he kept the staff departments under his wing and made their services available, on a fee basis, to the western company. Would the western company continue to use them, although the services were no longer "free"; or would it be likely to start hiring an economist here, a credit manager or a public relations man there, and wind

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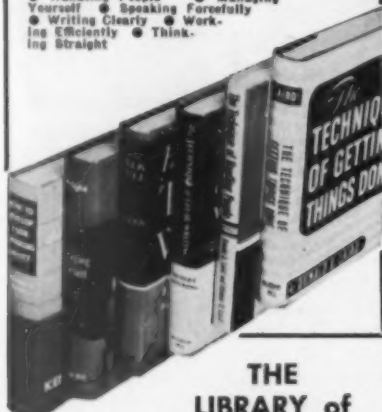
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PRESIDENT Ellis J. McClanahan will guide fortunes of new subsidiary.

up with a whole new range of staff departments?

Follis was haunted by the specter of a vast industrial bureaucracy of duplicated staff jobs with a potential annual drain of \$4-million or more. Before he would risk that, Follis decided that the destiny of the western operations needed more thought.

IV. Decentralization

Follis took his first decentralization step in 1954. He cut the apron strings to the subsidiaries. Until then, each subsidiary had a board chairman who was a vice-president of the parent corporation. For example, George A. Davidson, the parent's vice-president in charge of manufacturing, was board chairman of Salt Lake Refining Co. Davidson gave up that chairmanship. Even Follis and Petersen stepped out of directorships they held in some of the subsidiaries.

• **Three Levels**—Follis established three levels of authority and responsibility: the board of directors, its executive committee, and the heads of operating companies.

The president of each subsidiary now had his "charter"—a page in the Executive Guide defining his job, his responsibilities, and the precise limits of his authority.

Matters beyond the subsidiary president's authority—largely in the category of corporation policy—would go to the executive committee through channels carefully defined in the Communications Guide.

A man stands or falls on his performance, reviewed periodically by the executive committee. At least once a year the president of a subsidiary must



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**ECONOMY
ENGINEERING**

face the executive committee for review of his performance and of his plans for the year ahead—his proposed expansions into new markets, his plans for exploration, research, use of tank-ships, the works. He must lay down his budget for capital expenditures, exploration, research, advertising, employee relations, aid to education, charitable contributions. His plans for executive development are scrutinized.

If the committee members concur in his thinking, they "endorse" it by authorizing Follis to sign the corporation's proxy over to the subsidiary president, who solemnly votes it at his annual meeting. If they fail to concur, the whole business is referred to the committee secretary who, with his staff, helps the president to recast his outlook.

• **Guides**—To lubricate the channels of communication between parent and subsidiary, Follis provided two steady-influences, one for administrative and policy guidance, the other for technical and operational aid. In the Communications Guide they're called contact officers and functional officers.

Each subsidiary president has, among the top executives of the parent corporation, one designated contact officer who is his "friend in court" and who serves as representative of the subsidiary's interests in corporation planning and coordination. The contact officer makes no decisions, however.

Functional officers, drawn from the same executive group that supplies the contact officers, serve the subsidiaries as pipelines into the corporation's reservoirs of technical knowhow. While each subsidiary head has only one contact officer, he may have up to eight functional officers in the parent corporation, each a specialist in his own field—finance, industrial relations, refining, exploration, etc.

Like the contact officer, the functional officer has no decision-making authority. But he is responsible for the functional coordination of all activities in the field of his special skill within the corporation and the subsidiaries. Fulfilling that responsibility without the power to give orders would seem, on the surface, a difficult job.

• **How It Works**—Vice-Pres. George Davidson's status is a good example of how all this works. Davidson now is vice-president in charge of manufacturing and research; he is also a director of the parent corporation. As an expert on refining, he is a functional officer for every subsidiary that refines oil—Salt Lake Refining, California Oil, The California Co., American Bitumuls & Asphalt, Standard Oil of Texas, Cal-Tex Refining, Standard Oil of British Columbia. To these and others, he is also functional officer in matters affecting research. These companies in turn

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Control Signals for Management

New breed of engineer sparks

\$4 billion control market in 1957 . . .

New market studies reveal vital sales data

Expected 15% increase in plant and capital spending make 1957 the big year for trial and proof of performance of new measurement, data processing and control equipment. With the great advances he has made, and with management backing the control systems engineer promises big "pay-off" in terms of new and improved manufacturing processes.

Process control turns corner . . . Two distinct types of computers, one for a "quick look" at process operating parameters, and the other for engineering, accounting, etc. will unite the data logger with the graphic panel. Continuous process analyzer purchases, which in one company rose to an annual half a million dollars, should shoot ahead even faster in 1957 as the move from "lab" to "line" accelerates.

Numerical control surges ahead . . . of the 140 orders written in 1956 for numerically controlled skin mills, spar mills, and other profilers, 100 will reach aircraft shops by the end of '57. A possible 40-1 shortening of the time span from drafting board through finished machining, including a 10-1 reduction of machining time, makes numerical control a hot button for metalworking in general.

Supersonic missile control red hot . . . aircraft and ordnance control engineers will intensify research in self-adapting auto pilots, in improved reliability, and in extremes of high and low temperature hydraulics. Fluids, seals, fittings, and materials are all due for a drastic upgrading.

General purpose test equipment gets nod . . . biggest group of respondents say 70% to 100% of their requirements will be for the commercially available. 50% of the respondents report test equipment expenditures up strongly in 1957 with heavy emphasis on automatic test.

Electronic or Pneumatic or both? in a recent study on "Process Control Instruments," the respondents left this one in a photo-finish—34% for electronic control, 31% for pneumatic, 35% voted no preference.

CONTROL ENGINEERING hits new high . . . now in its third successful year, the control engineer's own magazine closed 1956 with an ABC net paid circulation of 29,613, almost 100% over first issue. Ad pages totaled 1,321—a gain of 531 pages over 1955.

Market studies now available . . . want to know more about the control engineer, his characteristics, and the market he's building? Write for up-to-date market studies on: Test Equipment; Process Control Instruments; Motors and Rotary Servo Components. Also available is the Profile Study of the Control Engineer.

**Control
ENGINEERING**



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have other functional officers who advise them in other areas.

In his other hat, Davidson is contact officer for three designated subsidiaries: California Research Corp., Salt Lake Refining, and Pacific Oil Co. (Calif.). If Peter Johnson, president of Salt Lake Refining, spots a golden opportunity to expand his operations but needs more money than he budgeted and must act quickly, he takes the problem to George Davidson. In turn Davidson may take it to the executive committee.

Davidson, in his manufacturing and research specialties, is only one of several functional officers that Salt Lake's Johnson may turn to. On exploration and production, Johnson would consult Vice-Pres. Gage Lund; on legal matters, Vice-Pres. Hillyer Brown; on finance, Vice-Pres. Elmer Peterson.

If Johnson's problem involved the specialties of several functional officers, he would lay it in the lap of George Davidson, his contact officer, who would then seek to coordinate the advice of all the specialists.

In cold print, a recital of all these relationships looks almost ritualistic. Actually they're not so formal nor so formidable as they look. Follis' aim was solely to establish reasonably clear channels of communication.

• **Dividends**—Smooth organization was the long-range objective of decentralization. It pays other dividends, too. One is the increase in stature of a subsidiary president and his men when they're on their own. Responsibility makes executives of them—or it breaks them. Another dividend is paid in cold cash. When a subsidiary has its own balance sheet, it's likely to be more circumspect about financial results than if they were buried in the consolidated figures.

V. Final Step

Vesting the subsidiaries with autonomy still left Follis with the problem of how to shoehorn that big western operating property—what most people think of when you say Standard Oil of California—into the organizational structure.

He had two choices. One was to set it up as an operating division of the parent corporation. Such a move would have the short-term advantage of expediency; but in addition to having some critical disadvantages it would amount to attempting to solve the problem by pretending it wasn't there.

The other choice was to set up the western operating property as an autonomous subsidiary equal in organizational rank to the other subsidiaries. But in this direction lay the bureaucracy of duplicated jobs.

• **Odds on Subsidiary**—Follis and his organization experts were pretty well convinced that sooner or later they

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would create the subsidiary. But Follis wanted to be certain that he could escape that bureaucracy before he took the final plunge.

In 1954, as a temporary measure, he designated the western property as the Western Operating Div. That separated the operational from the administrative functions of the parent corporation. As a first step in cutting the division loose, he shifted the operating responsibility from Pres. Petersen to Ellis J. McClanahan, director and marketing vice-president. McClanahan became general manager of WOD and remained vice-president and director of the parent.

• **Bugs**—Now Follis could sit back and study his creation. Its first big weakness was glaring. Here was McClanahan, one of the seven top men in the company, sporting the title of general manager and running a "division" whose earnings rivaled those of all but a few major oil companies. Still, Follis was determined to live with the problem a while.

• **The Plunge**—Last December, Follis was ready to take the plunge. After almost three years of experience, the feared bureaucracy failed to materialize. Here is the plan Follis sold to the board of directors:

WOD with its 25,000 employees was lifted out of the parent company and established as an autonomous subsidiary with the polysyllabic name Standard Oil Co. of California, Western Operations, Inc. It functions as a management company. That is, the parent corporation retained legal title to all the physical assets but signed over the management of them to the subsidiary.

• **Staff**—McClanahan became president and chairman of the big subsidiary. By virtue of his seniority, he remains a vice-president and director of the holding company. Like other subsidiary presidents, McClanahan has access to the full range of functional officers—his fellow vice-presidents of the holding company. Unlike the others, he reports directly to Pres. Petersen, his contact officer.

McClanahan took with him into the management company as vice-presidents and directors Howard G. Vesper, Julius E. Toussaint, and Otto N. Miller, all of whom relinquished their vice-presidencies of the parent corporation. His other vice-president-director is Fred C. Loomis.

Western Operations pays a fee for the services of the staff departments just as it did when it was an operating division.

At this point, Standard of California has decentralized about as far as it can hope to. The only problems at present are to make it work and to refine the organizational structure as the need arises. **END**

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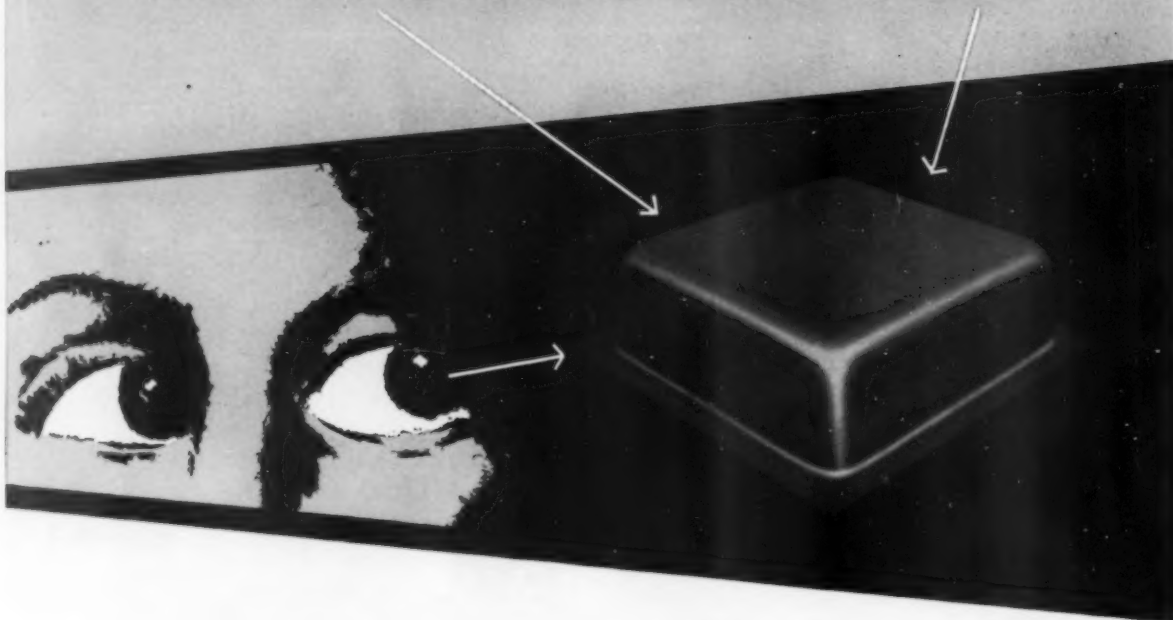
FAFNIR

BALL BEARINGS

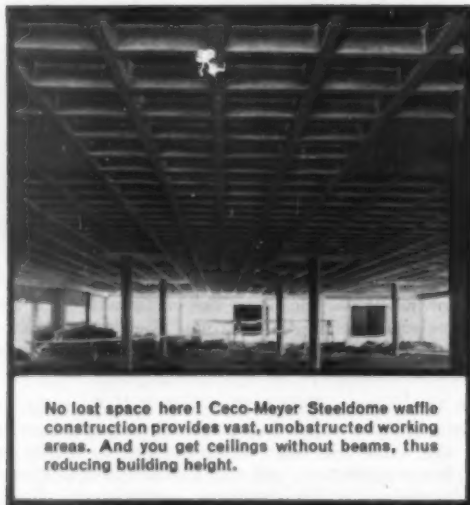
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In Management

• • •

Pressed Metals Loses

Its Comeback Fight

Pressed Metals of America, Inc., Port Huron, Mich., auto supplier, faces an uncertain—but decidedly bleak—future. For awhile it looked as if the company was pulling out of its financial tailspin (BW—Sep.22'56,p76). But more recently, it had to tell customers it couldn't guarantee delivery of orders beyond the end of February. Last week stockholders were asked to authorize sale of the company's physical assets.

PMA was once the major supplier of front suspension parts. When the auto companies changed the type of suspension in 1954 and 1955, PMA saw its profits slide from more than \$600,000 to less than \$150,000.

Last year in a bid to regain its former position, PMA sank \$750,000 into new equipment and started work on new suspension and engine and body parts.

But some of the new products didn't click, costs remained high. PMA lost \$139,000 through June 30, 1956, and an estimated \$521,000 in the next five months.

In January, the directors decided the company had to raise new money—which it couldn't—or sell out to a bigger company. A local businessmen's committee offered to buy control of the company for \$400,000 to try to keep the plant open. But they couldn't find enough stock for sale to gain control. So, the board now seeks to sell the company's assets. Two companies, says one director, have expressed interest in buying.

• • •

New Books Cover Variety

Of Management Problems

Recently published books of possible interest to top management include these titles:

- **Factors in Effective Administration**, by Charles E. Summer, Jr. (Columbia University Graduate School of Business). This is a study correlating the ideas held by teachers of university courses in general administration on what the "field of administration" is, and on what knowledge, talents, and attitudes make for success in it. Appended are detailed reports on some of these courses.

- **Business Action in a Changing World**, edited by Henry C. Thole and Charles C. Gibbons (Public Administration Service, Chicago). The book contains 27 articles by such authors as Sumner Slichter, C. Canby Balderston, Joel Dean on such topics as company growth, plant flexibility, executive recruitment, and labor relations. Common theme is how to prepare to meet new management situations that are constantly arising.

- **Proxy Contests for Corporate Control**, by Edward Ross Aranow and Herbert A. Einhorn (Columbia University Press). The book details the legal requirements and administrative strategy for both management and

dissidents from the early consideration of pressing a fight through court review of the corporate election.

- **Communication Through Reports** by Paul Douglass (Prentice-Hall, New York). This is a primary text on the organization and presentation of information in letters, memos, executive reports, and speeches.

- **Management Guide to Overseas Operations**, edited by Dan H. Fenn, Jr. (McGraw-Hill, New York). The book discusses the problems involved in overseas operations, with case histories. Articles were contributed by 48 writers, based on proceedings of last summer's National Business Conference at the Harvard Graduate School of Business Administration.

• • •

Latest Count of Joint Companies

Is Out of Date Already

The latest listing by Standard & Poor's Corp. shows that a total of 158 companies are jointly owned by other corporations. The majority of these joint ventures are "50-50" companies (BW—Oct.6'56,p88). But in some cases ownership is much more diverse. Richmond-Washington Co. for example, is owned by six railroads, each with a 16⅓% stake. And in some of the joint companies, ownership is not divided equally among the participants.

Since the list came out, two new "50-50" companies have been set up to produce zirconium. In each case, an aspect of the formation is slightly unusual. One of the co-owners of the newly established **Reactive Metals, Inc.**, is itself a "50-50" company. Mallory-Sharon Titanium Corp., owned by Sharon Steel Corp. and P. R. Mallory & Co., joined forces with National Distillers Products Corp. to set up the new zirconium plant at Ashtabula, Ohio.

In the other case, **N.R.C. Metals Corp.** previously had been a wholly owned subsidiary. But its parent, National Research Corp., sold a 50% interest in it to Columbia-Southern Chemical Corp., a wholly owned subsidiary of Pittsburgh Plate Glass Co.

• • •

Management Briefs

The internal fight at **Glen Alden Corp.** over acquisition of Maremont Automotive Products, Inc. (BW—Feb.23'57,p173) is growing hotter. Wentworth P. Johnson, the only director who did not take a side in the Glen Alden proxy statement to stockholders, asked that his name be removed as assignee on the proxy since "I must, at this time, vote again recommending to the stockholders acquisition of Maremont assets."

B. Gerald Cantor is now a director of **National Theatres, Inc.** The Beverly Hills investment counselor bought stock in the company last October, advised clients to do the same. When management refused to put him on its slate for the board, he lined up enough votes to get himself elected in the cumulative balloting. Cantor made no criticisms of management, and answered "No comment" to questions on his qualifications at the annual meeting. The other 10 seats were filled with members of the management slate.

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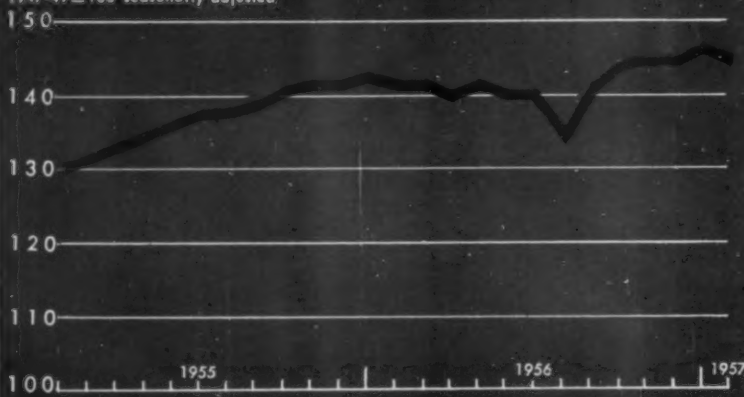
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Des Moines 14, Iowa Kansas City 8, Mo. Fort Worth 12, Texas
305

CHARTS OF THE WEEK

Industrial Production

1947-49 = 100 seasonally adjusted



Data: Federal Reserve Board.

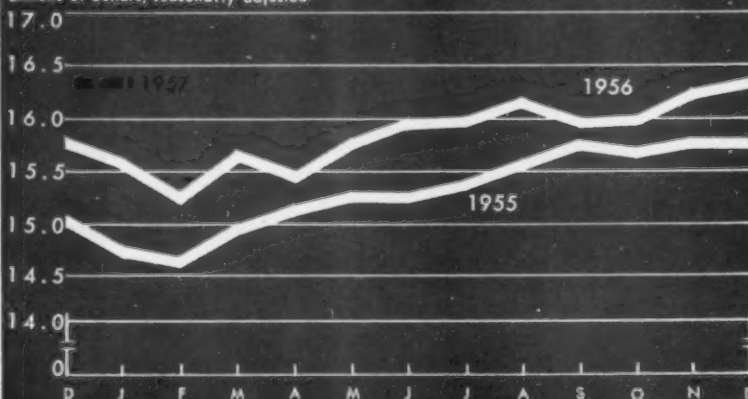
Down a Notch

Seasonally adjusted output of factories and mines in January dipped below the all-time high of 147% of the 1947-49 average reached December, 1946. But January was still 2% above year ago.

Production of all durable goods dropped below the December level on the seasonally adjusted basis, but topped January, 1956. Output of consumer durables, however, was 6% below year-ago January, and major consumer durables were down 7%.

Retail Sales

Billions of dollars, seasonally adjusted



Data: Dept. of Commerce BUSINESS WEEK Estimate.

Record Rate Continues

Retail sales in January, after adjustment for seasonal variation, held firm at their record December rate. They piled up a 5% margin over January, 1956.

A small increase in sales of durable goods was offset by a comparable decline in sales of nondurable goods. In each of the preceding four years, sea-

JUST HOW BIG IS THE INTERNATIONAL BUSINESS MARKET?

In estimating the size of the overseas market for U.S. goods and services, we are apt to measure *only by the quantity of U.S. exports*. This is certainly no small figure — the best preliminary estimates are that 1956 will be better than a \$16 billion year.

But such a figure is two-thirds inadequate. It measures only one-third of our foreign sales . . . the rest is made up in foreign sales by U.S. companies from plants abroad. When you include these figures — and they are admittedly hard to get — then the international market accounts for sales of close to \$50 billion!

And in many cases, sales and profits of foreign subsidiaries of U.S. companies are growing faster than domestic operations. A recent analysis of 12 representative companies showed that in the five-year period 1950-55, the average increase in dollars in domestic business per company was 45.5%. *In this same period, these same companies showed an average dollar increase in foreign business of 159%.*

The size of the overseas market, the remarkable industrial development throughout the free world, and the real opportunities which exist in international business have, of course, made many U.S. companies more interested than ever in selling overseas. Paralleling this interest has been a corresponding rapid growth of overseas interest in U.S. management methods and techniques.

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PLANTS—PROPERTIES

For Sale

For Sale: Auto Body Repair Shop, plus manufacturing division fabricating sheet metal and wire products. Established 28 years. Dun & Bradstreet rating C-14. Average gross past five years over \$108,000.00 per year. Either or both operations could be expanded with minimum effort. Approximately 12,000 Sq. Ft. plant floor space masonry construction plus older dwelling. Will stand strictest investigation. Located in middle west county seat of 60,000 Pop. Corporation stock all held by one individual who wishes to retire. Pay yourself a five figure salary and get your investment back in less than four years per part earnings. This business has always shown a profit. Around \$50,000.00 for land, buildings, equipment and business. Cash reserves and accounts not included. FS-4356, Business Week.

sonally adjusted retail sales have declined from December to January.

The healthy level of retail trade is

particularly encouraging now because inventories are high and consumer goods production is showing some softness.

Steel Production

Millions of tons



Data: American Iron & Steel Institute.

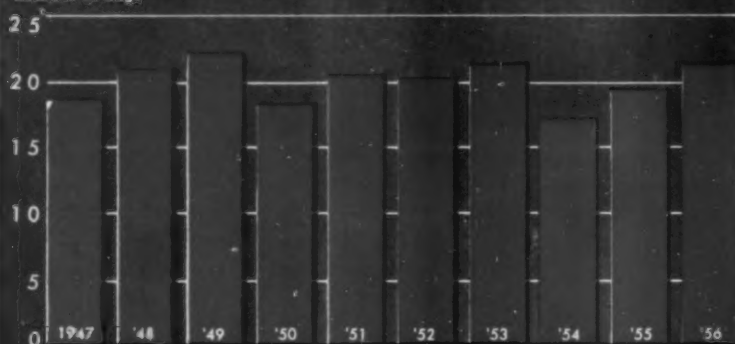
Pushing Past 11-Million Tons

Production of steel ingots climbed above the 11-million ton mark in January for the second time recently. The first occasion was October, 1956, when output reached 11,048,513 tons. January's level was a 1.5% improvement over December. February production has

been moving at about the same weekly rate as in January. But because it's a shorter month, the total will be substantially lower. Industry predictions for continued near-capacity operations, for the first quarter at least, seem to be holding up.

Coffee Imports

*Millions of bags



*132 pounds each

Data: Dept. of Commerce.

On the Way Up Again

Coffee imports rose further last year, climbing nearly 7% over 1955 as Americans took to sipping more of the brew again. The 1956 rise follows 1955's jump of 15% over 1954's sharply reduced levels. Imports of coffee in 1954

had dropped about 19% below the previous year as prices rocketed. Estimated per capita consumption rose about 7% from 1955 to 1956—matching the import rise. Generally stable prices encouraged the improvement.

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A Realistic Middle East Policy Develops

The domestic controversy over the Administration's Middle East policy has lessened this week. And so, apparently, has the danger that the government of Israel will stick to its refusal to withdraw from Egyptian territory.

Yet no one who looks carefully at the world problems facing this country can fail to note the regrettable consequences of this controversy. Perhaps the most regrettable of these is the way in which it has blurred an already complex situation and delayed approval by Congress of the Eisenhower Doctrine.

As we see it, the Administration has taken a realistic attitude toward the Middle East ever since the attacks made on Egypt by Israel, Britain, and France. Without hesitation it accepted the fact that the U. S., working through the United Nations, would have to take over responsibility for keeping peace in the area—or see it go by default to the Communists. And very soon it formulated several operating principles on which to base American policy. These have been implicit in every public statement Pres. Eisenhower has made on the Middle East during the past four months, including his address to the nation last week on the question of Israel's withdrawal.

At the risk of oversimplification, we would like to suggest that these operating principles boil down to three propositions:

- The area of the Middle East is almost entirely populated by Arabs and must be run by the Arabs—after due allowance is made for Israel's security.
- In accepting responsibility for keeping peace in the area, the U. S. is not prepared to use the traditional methods of European colonialism or the methods threatened by Soviet imperialism.
- There can be no fresh start in the area unless the belligerents all withdraw from Egyptian territory and, in effect, admit that the use of force must be reserved by the free world nations to meeting Communist aggression.

In an appeal he made this week over the Voice of America, Pres. Eisenhower put the American approach to the Middle East problem in terms that were both simple and eloquent. After recognizing the fact that in "this new age" there are dozens of new nations struggling for independence and a better life, he warned that there would be differences between them. And then, speaking of our foreign aid program and our support for the U. N., he said: "Just as we support the vigorous independence of today's many separate nations, so, too, we support just as vigorously the practice of settling the inevitable disputes between these nations under the principles and procedures of the United Nations."

In a reference to the Eisenhower Doctrine and a warning to Moscow the President stressed that the U. S. is also determined to keep the new nations

of the Middle East "free of the menace of international Communism, which could swallow all their hard-won accomplishments overnight."

It may be that until last fall the Administration was reluctant to face up to the seriousness of the Middle East problem, though if that were the case it would have been nothing new for a democratic government and certainly nothing for political opponents to crow about. It may be also that the Administration raised the issue of economic sanctions against Israel prematurely.

That said, we would like to register our opinion that Pres. Eisenhower is showing both statesmanship and political courage as he wrestles with the new responsibilities this nation has taken over in the Middle East.

Money Well Spent

Five years ago, the Ford Foundation turned its resources into a fertile and exciting field with the establishment of its TV-Radio Workshop and the creation of the Omnibus television series. The major aim of this undertaking was to determine whether there was a place for the cultural program within the structure of the mushrooming new communications medium.

At the start, many thought Omnibus would fail because it was "too highbrow" to appeal to the general public and also that it would always be shunned by advertisers because it lacked the pat formula and tested appeal of the soap opera, quiz show, or gyrating guitar player.

However, Omnibus has turned out to be one of the outstanding successes of television. Its programs, including lectures by Joseph Welch on the Constitution, Agnes de Mille on the dance, and Leonard Bernstein on music, have won large audiences as well as much critical acclaim.

Through its pioneering program, the Ford Foundation has shown that television doesn't have to gear itself to the lowest common denominator to be successful. Likewise, it has shown that such programs do have commercial appeal; in the past five years commercial sponsors have underwritten \$6-million of Omnibus' \$9-million cost.

Its objective accomplished, the foundation is now terminating its support of the project, and Omnibus will venture into the world on its own feet. We hope, however, that the Ford Foundation—as well as other foundations—will continue to pioneer new paths in the world of commercial television. It would seem that in this highly important area of mass communication, the foundations can carve out for themselves just as sizable a niche as they have in the fields of education, medicine, and science.



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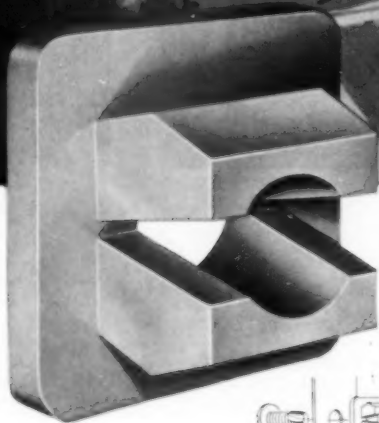
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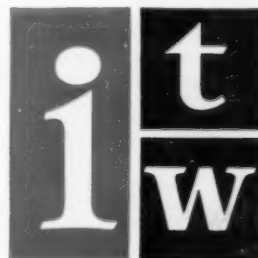


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